

Working paper

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# Managing Risks With The Fairest Value

*Avoiding Problems by  
Using Different Market Concepts*

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*Avoiding Problems by Using Different Market  
Concepts*

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# 1 Introduction

A fair value is right because it creates the least trouble. This paper shows on the basis of ethnographic data the problems that are avoided in choosing the right fair value in large financial institutions.

The Disney movie *Mary Poppins* contains the scene of a bank-run. While the children that Mary Poppins cares for visit their father, the stiff bank manager, at his work, people start to run in the bank, and a chaotic scene of people running around and others trying to close the door is shown. The chaos that comes quickly and defaults the bank, leaving the father penniless but happy. The bank run presented here and the consequent default of the bank is the general imaginary we might have about bank difficulties. Customers want their savings back all at the same time, the bank is not capable to do this and it bankrupts.

However, the bankruptcy and problems of large financial organisations do not only occur through immediate problems of clients getting their money, otherwise called liquidity problems. In the 2008 crisis and the difficulties that occurred after the fall of Lehman, multiple European banks needed state help for something else. To avoid possible bank runs, banks like ING, Fortis/ABN Amro, BNP Paribas and Societe Generale <sup>1</sup> received state aid or guarantees for a possible devaluation of assets. The sub-primes on the books of these banks had to be devaluated quickly, opening the possibility to a default through negative equity or not applying to the capital rules set by the regulator. Both equity and assets are part of the balance sheet while capital requirements are mentioned in the financial reporting. Therefore, the final viability, and problems, of the organisation go through the financial reporting, the accounting representation.

But what comes before the actual trouble, the default? And how is trouble internally prevented? Through the management of risks, possible problems can be controlled. Thus, risks are the qualifications that come before the problems arise. It is through the control of risks that financial institutions are supposed to prevent default and devaluations. When looking into risks of possible financial losses, there are a multitude of different categories. This goes from the negative impacts of interest rates (interest rate risk) to the negative impact that a defunct printer might have (operational risks). It is not always the case that the risk calculations make a financial organisation default <sup>2</sup> but by managing risks one could prevent default. European regula-

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<sup>1</sup>See the Parlementaire Onderzoek Financieel Stelsel(2009-2012) for the Dutch Banks and Woll (2014) for the two French banks

<sup>2</sup>This is a possibility. For example if capital measurements are much higher than the actual equity in the organisation, or in the case of insurance when provisions and capital

tion has stepped in in the management of risks of large financial institutions, starting with CRD I dating from 2000. <sup>3</sup> Later regulations in Europe have gone up to CRD IV for banking and Solvency II for insurance companies. An important aspect of these directives (and the accounting rules that go alongside it) is the market as basis for valuations. Through the market, prices are given which are used for the determination of the balance sheet. Therefore, risk management itself works with these market valuations to make sure risk parameters are calculated as well as to make sure that the balance sheet does not show too many problems when there is no need for this.

This paper concerns this intersection of accounting, risk management of organisational health and market values, all of which can be found in the practices of financial risk management. With the help of immersion in both banking and insurance, three episodes of market price establishment by risk management are discussed.

The literature on financial market value determinations can be distinguished between a literature on accounting practices and one on financial models. In accounting, the discussion on fair value is a polemic one. In the 2000s, the EU changed from economic value to market value. Accounting scholars presented two sides of a polemic debate on what the best type of valuation is (Bignon, Biondi, & Ragot, 2009). Proponents of fair value see it as the the right value, since the market gives the only right values. It is therefore also a value that would not be manipulatable. In a world where shareholder value maximisation is the standard (Ho, 2009), the balance sheet and other financial reporting are supposed to reflect short-term investment possibilities rather than the long-term stability of an organisation. It is in that light that fair value has been implemented, changing from an original economic valuation. There where economic valuations are stable and based on amortised cost, fair value brings with it changing prices rather than a stable valuation.

The social studies of finance has done extensive research into market devices and the calculations that come from it. After Callon put forward the theory of the performativity of economics, scholars have discussed on the way in which models were used in financial markets. As MacKenzie and Millo (2001) show in their discussion of the Black-Scholes-Merton option pricing model, the specific modelling techniques are chosen to represent ideal market values. The Black-Scholes model has become a standard of derivative

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are not calibrated well and the company cannot handle a surge in claims

<sup>3</sup>See Baud and Chiapello 2015, who note that the start of the Basel II regulation is in Europe in 2006 but at the same time, the CRD I package already regulates risks through what can be called the Cook-ratio, or a basic ratio of risk and capital of the assets in general

pricing and allowed other types of products to be valued in a similar way. The usages of implicit variables in the option pricing and stochastic calculations have not remained limited to derivatives and the theory has been used in instances that could theoretically be related to derivative pricing, for example when looking at the market values of insurance provisions.<sup>4</sup>

The market in the model is the one and only value, representing economic ideas of what the market is supposed to represent.

Model of the market and value of the market come together in fair value accounting. The idea of a true value that represents the investors' interests remains however an ideal. On the following pages, the usages of these ideals and rules are explored. Within the rules an ambivalence remains. Market values are not singular and even on the same moment of time, different markets can be established.

The final values are based on choices made internally on how risks, risk methodologies and values are represented. People working in the risk department can make discretionary choices on how the market value is determined.

Through detailed case explanations in which the fair value practices are made clear, the problems that risk management faces are shown. They try to avoid problems with actors outside of the organisation like regulators or external accountants, their own moral and the means that are available to them within the organisation.

Since fair value is about markets, risk managers avoid the possible problems by using different types of markets. A typology of three different type of markets can be distinguished. A market can be a direct interaction with a counterparty (the direct interaction), it can be a mathematical aggregation of multiple transactions of the product (the aggregation), like a curve from a stockmarket and the last one is a hypothetical market price (the ideal calculation), one that is based on a model or ideal, like for example a Black-Scholes valuation.

In banking, risk management of financial market assets dealt a lot with values and therefore also quite constantly with the importance of market values and fair value. In risk management in insurance, fair values were less direct. It was part of the calculation process but the direct valuations of objects was left to the asset management companies and the investment department that had to give the valuations of the assets when reportings had to be made and the books had to be made.

First of all a short discussion of the sociological literature on these rules and usages is given followed by a discussion of the rules of accounting and risk management. After that, the risk managers' general work on risk, problems

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<sup>4</sup>Interviews carried out by the author with people working in insurance risk

and balance sheets is described. Fourthly, three separate cases of risk managements' usages of markets in concepts of fair value can be read, followed by an analysis and the conclusion.

## 2 Literature Background

When looking at literature on financial markets, valuations and accounting, many aspects come forward and most of them can be gathered under the ways legitimacy is determined. What is the right practice and what is the normal market? Legitimacy is a word used in accounting to show if a specific type of information makes an actor more or less acceptable (Carpenter & Feroz, 1992). However, the word is quite ambivalent especially if it used in a wider concept of political actors. In case of doubt of concepts, Weber and his *Economy and Society* (1978) always offer solace. Legitimacy is defined by Weber in two parts, a legitimacy through law and a legitimacy of value. Legitimacy of law means that something is right because the law says it. Legitimacy of value is that what is seen as good and therefore right.

Where accounting rules and risk regulation fall under the legitimacy through law, modelling practices and market standards are part of a legitimacy of value construction. Scholars in the social studies of finance have helped us understand more about what is seen as the right practice. However, this literature has mainly focussed on front office practices in finance and their methods. Accounting, back office and risk management have been touched but relatively little.

One of the foundations of the work on finance is the performativity theory as put forward by Callon (1998) and further developed by MacKenzie (2008). In performativity theory, economic theory and practical knowledge (thereby including accounting) make economic reality. MacKenzie establishes multiple types of performativity, from the usage of theory in tools to theory making reality. In his work on Black-Scholes he shows convincingly how the model has created a market of derivatives. Before the model, there was hardly a standardised approach to derivative pricing and the model made derivatives a priceable and investable product. Accounting practices can be seen as performative in themselves, see for example MacKenzie (2008[2]), where adapting to different categories makes a new world that is the truth of financial reporting. It is through the material of computers, numbers and calculations that these worlds are created.

The importance of objects and materiality in finance is similarly expressed by Knorr-Cetina and Bruegger (2002) in their interactionist view of foreign-exchange traders. Their description of the market transactions relies on

a simple interaction between human, calculation and screen. Through the screen a new world is created of traders that communicate in a hermetic language with each other in different locations over the globe.

However, going back to Weber and legitimacy, an essential aspect of his theory of modernity is the bureaucracy that is continuously rationalising. The bureaucracy and the organisation are key places in the construction of markets. Where Knorr Cetina and Bruegger focus on the interactions of traders through screens, they forget that the screens are owned by the bank that they trade for, that the trades are accounted for on the books of that bank and that the place that they are sitting in is a bank. The organisation gives the opportunity for a limited amount of people to trade on specific financial markets. These people therefore work within the setting that the financial organisation gives them. There are interdependencies between departments, for example the front office needs the IT department to have its computers and financial software working.

And so describing markets without the organisational worlds behind them leaves out a determining dimension. It is risk management that is exemplary between the two dimensions of market and organisation, helping both the organisation to exist and controlling market practices. So risk management has to deal with organisational imperatives, besides that what is legitimate in the market. First of all, there is the ownership pressure of the organisation. In a world of shareholder value, it is the accounting of the organisation that needs to fulfil the requirements of the shareholders (Ho, 2009; Fligstein, 1993). Besides that, there is the regulatory restriction that the organisation is placed in. The fair value rules as well as the different risk regulations of Solvency II for insurance companies and CRD IV for banks give a framework to regulators as well as to risk departments.

Risk control and accounting have both been described as controlling mechanisms. There is an aspect of control related to accounting and similar controls have been put forward for risk management (Power et al., 2008). Control through accounting and risk comes in theory through the concept of governmentality where the control comes through the looking glass of the numbers (Miller & Rose, 1990). However, the question needs to be asked, as we can put it with framing and different order observations, how the control happens. In the case where the risk department determines the accounting representations, can we really speak about control and governmentality?

Not only being able to calculate the control measures themselves makes the concept of Foucauldian control questionable in the case of risk management. Ethnographies of banking organisations have also shown a status difference between departments. In financial organisations, a division of labour exists between those that make deals with clients and the rest. Traders

deal on financial markets, sales people work with the clients while people in risk management, back office and accounting are not directly involved in the initiation of the trade.

Godechot (2007) shows convincingly status differences between separate departments.<sup>5</sup> In salary negotiations, traders get the biggest share of the bonus pool. Their contribution to profits are easily measured and traders seem to appropriate the gains to their personal actions. The contribution of other operations like IT, back office or risk management, to the profit and loss account is less visible. This then makes them less visible and less legitimate in the negotiations on the bonus pool. It all results in distinct salary differences with those working in the front office earning more than the ones that do not.

Not only the economic capital differences through salaries show the hierarchy between departments. Ho (2009) describes how in her job as internal consultant of a large US investment she had to take different elevators to go to different departments. The front office departments where people worked with degrees from Ivy League Universities had the nice elevators whilst the back office departments (with people from lower tier universities) were confined to the less beautiful part of the building. So when Power writes about risk management as a form of control, one has to wonder if this is possible given the hierarchy that is formed. The organisational set-up in which this takes place lets risk managers stand lower in the (informal) hierarchy than the people they are supposed to control.

And so the organisation, the market and questions of control and representation come together in risk management's accounting in fair value. Legitimacies in financial markets seem to lie in the economic theory that is created behind it, whilst risk management has only been studied in this organisational set-up of control. Both aspects are questionable and fair value usages can help us answer the question of how the right values are created inside financial institutions. In order to do that, both markets and organisational set-ups need to be taken into account. The object of what is the legitimate value and how it is created will be the subject of the following sections. First of all however, a short methodological discussion is given followed by the accounting background of fair value.

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<sup>5</sup>Only Working Rich is discussed here but a good explanation of the division of labour can be found in *The Traders*, Godechot (2001)

### 3 Methodology

The in-depth research of risk management was carried out through an ethnography of large financial institutions. Two participant observations were carried out, one in a European bank and the other in a European insurance company. Besides that, I carried out semi-structured interviews with people within and outside of these organisations (86 in total), all working with risk management.

Access to the fields had been negotiated through personal networks, either due to impromptu meetings or elite networks. The access was obtained in informal ways, through personal, work and alumni networks. There are multiple reasons for this, one of them being the aspect of secrecy that lies behind risk management. In banking especially, people can be quite focused on secrecy. Information leakages can mean the bankruptcy of a bank and therefore a researcher looking further into their activity might cause problems. Secondly, access is a question of time and respect. Sociology is not always seen as a valuable science in the financial sector (thereby including insurance) and people might feel they lose their time by talking to you or letting you inside their organisation. Besides that, the people in this field are extremely busy. They hardly have time for a family life, let alone the time to talk or open up to a researcher who is not necessarily in their immediate interest.

In the end access was granted in two different institutions, Bank F and Insurance Company V. In both institutions I worked in the risk department as an intern. At the bank at the market risk department and in the insurance company at the financial and life risk team, working with the regulatory models.

A short description of the fields is important to understand the discussions on the value determination. Bank F was a European bank in run-off; long-term liquidation. The Market Risk Management department dealt with the 'second' order control of both the balance sheet management risk and market product risks (objects classified in the banking book). Roughly 20 people worked in the team, that was divided into five teams of three to six people. There were two teams that dealt with the risks of the balance sheet, two that dealt with the valuations of the assets and one that worked on general aspects, of which I was part of.

Insurance Company V was a European based global Insurance Company, I worked at a European local branch. The Life and Financial Risk team that specialised in the models related to Solvency II consisted of ten people, mainly working on the life risks. There were three people working on the financial risks directly and during my internship, a reorganisation made that

the financial people left the life team and entered their own.

This paper is mainly based on encounters and meetings that were part of the ethnography. It is the observations and discussions with people that show the different market practices and some additional interview material in which people have explained to me the calculations of specific valuations. Since the material discussed here is closely related to organisational practices and not to the stories people told about their work, the subject had hardly come up during interviews but was important in the work people did. But in order to know about the right representations of risks, first of all it is important to know what risks are in the field.

## 4 The Accounting Rules

Accounting scholars have had hefty debates in the 2000s on what the right value is to account for (Bignon et al., 2009; Power, 2010). Should a balance sheet be in economic value or in fair value? In the end the battle was won for the implementation of fair value, where the international accounting standards (and therefore also European) adopted market measurements instead of economic values. However, what do these fair values mean?

Fair Value in IFRS 13.9 is defined as follows: “Fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date” (IFRS p. A609) A further explanation is given in the Appendix of IFRS 13, where fair value is further made explicit and valuations need to relate to a particular asset or liability ( a unit of account), the principal or most advantageous market for the asset or liability needs to be followed as well as the “valuation techniques that are most appropriate for the measurement, considering the availability of the data with which to develop inputs that represent the assumptions that market participants would use when pricing the asset or liability and the level of the fair value hierarchy within which the inputs are organised” (IFR13, A632, B2)

The last quote shows the importance of the market and its representations. The IFRS continues of the possibility to offset and how to deal with risks and transaction cost. The main idea behind it seems to be that the market price already integrates the cost and therefore no offsetting can be used in most instances.

Fair value is supposed to be the accounting technique that shows the right value of a financial asset on the balance sheet. Fair value takes into consideration the market values that are given for the assets on the balance sheet. For example, when [consolidation person 2] of the insurance company

would have to present the annual numbers, he would try to collect them from the bookkeeping people. They would give him what was called the exposures that the entity would have bought up to three days before this final deadline data<sup>6</sup>, after which he would start working on putting all the different asset classes into new categories and thereby bringing everything together in the bookkeeping software, consolidating the numbers to find a final one that would represent one balance sheet item in the consolidated balance sheet that the Group would deal with.

As Gerard, the person I shared my office with while working for the bank, reasoned, accounting standards were rational and there to represent reality in the best way possible. Therefore in the case of Bank F, fair value made perfect sense because it meant the value at sale, which was the basis point of the business since it was in a long-term run-off and had to be sold. Since it had encountered default, fair value was the right way to go. But he also recognised that it had brought the organisation into trouble, having to value certain assets on market value that could have brought down the balance sheet ratios as such that the organisation would have bankrupted, which it did in the end but not on those ratios. However, in an economic sense of the word, those assets would never had been sold. They were unable to be sold because there were hardly any people that would like to buy them and keeping the bonds until they would pay-out, would lead to more money. And so Gerard reasoned with the concepts of fair value as being the right price, dependent on the circumstances.

IFRS 9 has three different levels of liquidity that determine the fair value determination that can be determined. Level 1 is the level that can be directly taken from the market whilst the second and third type rely on calculations that are derived from market ideas. These three levels are reported in separate ways. The first type of level does not need to be justified while the third needs to be explicitly mentioned and items cannot be in this valuation for too long.

During the fieldwork, all three of these levels were found and used in different instances.

## 5 Risk and Representation

Before untangling the specifics of fair value determinations, it is necessary to understand risks and representations in general. First of all the specifics of risk management are shown after which the importance of the balance sheet is elaborated upon.

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<sup>6</sup>He was not clear if these were end of day data or average day or mid-day

If one asks what risks are to people working in finance, two different answers are given in general. The first is the categorisation of the different types of risks which are then individually categorised. People would normally start the enumeration with credit risk, the risk of the creditor, counterparty risk, the risk of the counterparty in a financial transaction, followed by other tautologies of interest rate risk, liquidity risk and currency risk. As Ruth had explained during her interview at Bank F, just before she left to a bank that was not in run-off, risk was that what were the factors of the products. An example of this is a derivative that is based on two different currency rates. For that derivative the risks lie in the two currencies that make the derivative change in value. Not only bankers talked about this definition. During my first meeting in Insurance Company V, my manager gave me a list of risks. It was the second time I had met her, after a selection interview where it had been more her that had talked than I had. The list of risks were the calculations that influenced the final regulatory risk indicator. The list went from longevity risk to interest rate risk, all having their own specific theoretical specificities.

The second definition of risk used in the field is all the risks that make problems. As Gerard, the risk manager I shared the office with at Bank F, said, it is the problems coming from the market. It is all the risks in the market He then added that risks were also the things that you did not see coming. For example, before the fall of Lehman Brothers in 2008, liquidity risk and the lack of being able to finance itself on the market had not been seen as a risk but it had been.

Both definitions<sup>7</sup> lived alongside each other but were never really confronted with each other. The question of what risk is, was too theoretical for the daily practice of risk management. Daily questions of risks are on the losses carried by different products or for when a specific indicator should be calculated. The abstract question of what risk is is thereby left aside. In practice everyone seems to agree that specific tools and calculations need to be carried out and that is what they do. It is on these tasks on specific risks that risk managers seem to know what they do.

When talking about risks, the Knightian distinction of risk and uncertainty comes up (Knight, 1921). Risk is that what we can calculate, similar to Callon's concept of framing, while uncertainty is the unframed bit, the incalculable. The Knightian distinction is not used by participants and the people using the second definition include the incalculable risks, or the unforeseeable, within the definition of risk.

So what is risk is internally is defined by the calculation standards and

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<sup>7</sup>Note also the tautological aspect of both definitions

the problems that might arise. Risk management is both responsible for the indicators that show the specific risks as well as for the problems that might arise. Risk management deals with all the different types of risks but at the same time is responsible for the problems that arise.

Looking closer at the practices of risk management, risks are related to values and to the regulatory standards. The head of regulatory relations (part of the risk department) at Bank G lectured me on this point, showing that the two were not related.

Don't think that risk and capital are closely linked. It is not true. In fact you have risks, you have capital requirements and you have a kind of attempt to breach the gap, the more you are using the same models to assess risks and capital, the more we are trying, and you succeed in some extent, to bridge this gap.

However, even though the difference is emphasised by some participants, the measures that were used in risk management at Bank F and Insurance Company V were the same as the ones that would determine the regulatory indicators in the end. This was also related to the use test as emphasized by the head of risk management calculations of Bank Y. The use test was there to make sure the regulatory risk measurements were also used in daily practices. Risk management could see a conceptual difference but at the same time the two were used alongside each other in daily practices.

Another aspect of the risk concept is the problems that arrive to the organisation. Bank F had been hit hard by the financial crisis of 2008 and the Eurocrisis, leading in the end to the default of the organisation and a long-term run-off situation. They seemed to have encountered all problems that could arrive from the risks that had been (consciously or unconsciously) taken. As Trevor, the manager of the activities that calculated market numbers, had so pointedly said:

Every time someone [had flatulence] around the world, we [at Bank F] felt it.

The financial strategies that had been taken had seemed risk free but when the liquidity problems had started with the fall of Lehman Brothers, the problems had started coming. And it was risk management that had to deal with the problems. Where during the crisis, many people had been offered quite attractive severance package, the risk management department had hardly been offered any, according to Trevor to their own discontent. People had wanted to leave under these possible conditions but were not

able to. It was the risk department that dealt with the problems. Julia, a risk manager in a brokerage firm, felt that she would be the last one where the bucket would stop in case of a problem. It would be risk management that would need to be there in case the problem would arise and also be held responsible for not seeing the problem come.

And so risk is not only about categorisations, regulations or probability calculations. It is also about the management of problems. This might not be the official aspect of financial risk but in reality, their work is strongly related to the things that (might) go wrong.

### *Representation in the Balance Sheet*

In the conceptions of risk as a form of possible problems is where the balance sheet becomes interesting. Financial problems are partially represented through losses of income and the devaluations of assets. These are part of the balance sheet, the stock measurement of the state of the organisation and therefore the balance sheet also represents the state of health of the organisation. The balance sheet shows in the if a company is viable or not, if its liabilities do not outweigh the value that has been accumulated. In the idealised world of shareholder value, it is through the balance sheet and the annual report that one knows if you should invest in the company. It does not only show the investment side but also the financial problems the company has had to deal with.

The financial sector has started to show the healthiness of the organisation by using the market as its measurement instrument. It is the market that gives the value of a product that a bank or insurance company would own. This happens by using the markets opinion of a specific product, including therefore also its lack of value. The lack of value or a diminishing value is where the risk department comes in, it is the indication of problems that arose at the moment of valuation. It is there that the risk department interacts with the concept of fair value.

The fair value methodology for determining accounting value is in itself an interesting method, and the risk management departments interaction with it therefore also a worthwhile aspect to consider in the quest for the manner in which the right value is determined.

Even though insurance companies and banks work with similar objects of financial markets the risk management of those products is not the same. While both types of organisations might report bonds, stocks and derivatives on the asset side of their balance sheet, in insurance companies the focus of risk management lies on the balance sheet representation as a whole, while in banking it are the daily values of each asset themselves that are managed.

The risk management of insurance assets is related to the way in which in-

insurance liability risks are calculated. In life insurance, which includes pension funds, and disability insurances, the pay-outs of insurances can be related to the gains made on the asset side, leading to an interaction of risks between assets and liabilities. Banking could see similar interactions, for example by looking at the relationship between assets and collateral but the risk management did not look at this interaction.

Where in the bank's risk department the focus lied on the asset side and the possible value changes of those asset, the insurance company risk management's was focused on the liabilities. An example can be made in the people that worked for each side of the balance sheet. In the local department of risk management where I was placed, four people worked on the asset side versus 12 people on the life liabilities risks, let stand the roughly 20 people who worked on the non-life risks. In banking however, no one worked directly on the liabilities side of the balance sheet in risk management, with a possible exemption might be the nine people working on the asset and liability management, working with the risks of liquidity or the possible problems arising from interest rate payments.

The models of how risks were calculated changed also due to this change in focus.

The division of labour regarding balance sheet determination in banks and insurance would in general be such that the accounting department establishes the numbers, while the risk management department uses them for risk assessments. As the head of risk valuations of Bank F pointed out, his job was carried out in other banks by the finance department. Yet here it was, carried out by the risk department. In the insurance company a similar thing happened. There where the provisions on life insurance products, the responsibility of the finance department. However, the model that laid behind these calculations, a simulation model of the balance sheet with stochastic inputs, was made by the consultants working for risk management. The model itself was controlled and managed by the risk management department, there were the final figures would come from the finance department. The line between accounting and risk management is not a clear one when one talks about the economic value of financial market products. In other cases, it would be the risk department that is dependent on the accounting department's input to be able to analyse possible risks. It is the stress of a value or a balance sheet that lets the risk manager be in relation to the accounting value.

In banking and insurance, fair value means a different thing in risk management. Risk managers in banking defined themselves as working on the value of the products, doing true risk management was dealing with products in trading, their exposures and the changes in their valuations. In insurance, the people did not work with the valuations of the financial assets. This was

mainly left to the asset managers as well as the head office's financial people.

## 6 Market Usages in Risk Management

So how is the fair value used in risk management? And what does it tell us of risk management? To make sure the balance sheet has a representation that is healthy and shows as little as possible problems, risk managers work with different concepts of markets to avoid such problems. Within the fair value framework, the levels give room for manoeuvre as well as the unclear definition of what a market is. Markets can constitute of multiple things and risk managers used these ideas to avoid trouble. In this section the typology of the different market concepts is explained.

When we think about markets in a general sense, one of the first things that might come to mind is the weekly outside market, as one can find in extreme proportions in Rungis, France, or a farmers market. In these markets, it is the direct interaction and the location that one can think of as the representations of these markets.

However, not all markets are this direct interaction. In the literature on the empirical representations of market, multiple forms come forward. Another concept of a markets can be found when looking at stockmarket prices (see for example Muniesa (2000) ), which are aggregated prices of transactions made with a special algorithm. Another type of market is the ideal market as represented in a CAPM-model or the market volatility of a derivative that follows the Black-Scholes pricing model(MacKenzie, 2008a). The latter is not necessarily dependent on a transaction but on how a market is supposed to be calculated without the necessary transaction data.

In the fieldwork, risk management worked with three market concepts. The first concept of the market is The Direct Interaction. There is an interaction about a product and possible ownership changes between the actors. There is a possible negotiation involved with regard to the value of the product and the amount of actors involved is limited. It are not a hundred people negotiating for the same product at the same time, it is about the direct relationship on one product and thereby an interaction mainly between two actors. In the trading room and back-office, one would be to witness such a relationship since those were the places where either negotiations on transactions were going on or where documents and money flows would be exchanged. The first type came out clearly in the general market meeting that took place every week in Bank F. In the meeting Namely, when transactions were proposed and liquidity necessities were discussed. When counterparties were discussed, possible transaction partners or a list of possible long-term

investors that could be wooed to change their relationship with bank F, with a real road show attached to it. The market here is a direct relationship between two actors that interact to have an exchange, for example an exchange of goods for money or a good for another good.

During a meeting on the model quality of derivatives (discussed later on) another interpretation of what a financial market is came into the discussion and became part of a disagreement. In the meeting, the manner in which different derivative types were modelled was discussed and the different people around the table used either the market as a negotiation and transaction or as a general consensus that needed to be adhered to. This leads to the second market concept, namely The Aggregation, or price curves as one can obtain and see on a market screen like information providers Bloomberg or Thomson Reuters. This is what one understands as financial market when looking at the news for example. However, these curves are not a transaction and portray values of accumulated prices that relate through a formula of how one should calculate this.

The third type of market is The Ideal Calculation, one created by internal calculations, without the use of direct transaction data. These internal calculations exist in multiple forms and will further described below. Internal calculations can be seen by the participants as true market calculations, for example by the people in the bank that calculated interest rates or derivative prices while others were clearly seen as a 'political' calculation, not being a real market one. The latter was for example the case with the bond valuations in bank F, where they were clear on the idea that the valuations from the market were the right ones whereas from the model they were the wrong ones.

## **7 The Bloomberg Person: Bond Valuations in Bank F**

The market risk department of Bank F constantly dealt with market values, within the framework of IFRS' fair values. Two of the products in fair value accounting were bonds and derivatives. While evaluating these assets, risk management used the different market concepts described above to make sure they avoided as many problems as possible. Problems could, for example, come from the external accountants, telling them that they had not adopted the rules in the right way, from the regulator who gave them specific guidelines to follow-up on or from the owners who wanted to see the balance sheet in the right order. By altering the ideas of what a market was supposed to

be, problems with different actors were avoided.

The bonds had a big impact on the bank's balance sheet, having created multiple difficult situations in the past. Due to the large exposure, value changes could have big impacts on the overall balance sheet. Whilst after the first turmoil of Lehmann-Brothers had brought up problems in the banks financing, the problems continued afterwards. One of these problems had been the bond portfolio since it had lost a lot in value due to the market based accounting values. A specific problem was that there was no liquidity for a big chunk of the portfolio. The bonds could hardly be sold since no buyers presented themselves.

Liquidity is a well known aspect in understanding and classifying markets.<sup>8</sup> Too state it without nuance, liquidity is about if a market exists or not. If there is no liquidity, there are no buyers and sellers. With liquidity, there are active buyers and sellers willing to engage in a property exchange. For the bonds that were held by Bank F, not that many market actors were available and the bonds themselves were seen as illiquid. In the beginning of the internship, I helped with establishing (il)liquidity. Sorting out a bond as illiquid was used in the final value determination of the bond.

During the Christmas celebrations and Secret Santa of the financial market risk department, my gift was wrapped in Bloomberg images of asset prices and volatility. The gift itself was not very personal but the wrapping was. I was known in the team as the girl of the Bloomberg screenshots. One of the first days I had been at Bank F, I was asked by Pete, the head of the team that looked at asset valuations, if I could work with VBA, the programming language used to make non-standard programs in Microsoft Office applications. I did not, neither did I know how Bloomberg worked, which had been the follow-up question. But I was willing to try and figure it out.

While standing in the middle of the office that I shared with Gerard, Pete talked about his hobbies, the view from the high floor that we were on and the amount of contact he had had with the management board. So while he tried to impress me with his rich hobbies and status in the company, he asked if I had worked before with VBA or Bloomberg. He noted that he did not have a direct hierarchical status over me but if Valery, our direct boss and head of the risk department, approved it could be an opportunity for me to learn. Pete never hid the true background of his request. If I would help, it could avoid a conflict in his team. Every three months, they had to had a look at a specific type of assets and see if there was a market for them. Each

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<sup>8</sup>An economist working in an advisory role to a large European bank once told me that only assets and bonds took place in true markets, the drying-up of other fixed-income products like derivatives or collateralised obligations made their markets not true

asset had to be investigated separately and assessed if the category could remain the same or not.

However, the way it was set-up, this required a week's work. Not only was the work seen as not very interesting, it namely meant that they had to copy paste a set of screens delivered by the Bloomberg Machine of the price of the asset, the history of buyers and different pricing tools that give different prices, by at least one person in the team the work was deemed below her standard. Out of a team of five (including Pete), two persons had a standard high status quantitative background, while the other three had higher education degrees that were more random and less high status (two with economics degrees and one with an informatics degree). The educational background represented the cleavage in the team. The two main products that took up these peoples work were bonds and a specific type of derivatives, namely swaps. The two people that had very mathematical backgrounds worked on the valuations of derivatives and the others on the bond valuations. Mathematics and non-mathematics were status related, with being good in mathematics being high in status. The bond people worked with categories and relatively rough market tools like screenshots, amount of bidders and trying to fit a bond into a specific category. It were existing ratings and the maturities and coupon (the pay-outs that could be periodically transferred) of the bonds that determined the values, and none of that included the 'high' mathematics of the derivatives like stochastic modelling, implied correlations or historical volatilities.

Making it more difficult for Pete was the his background in handling bonds. He had worked on the trading floor of bonds and did not have derivative experience. This, and other more personal issues for example by not imposing his directives in a very dominant way, led to a lack of respect from the two derivatives people. The two people working on the obligations were quite quickly influenced by the other two's lack of respect for Pete. The female derivatives person, Janice, refused to do tasks that were beyond her perimeter. This refusal went far and was pertinent. Previously, it had led to a division of labour where the head of the team took over her tasks. The other three had, allegedly complained heavily as well as and showed their own discontent on why and how they actually had carried out this work. In order to prevent even further conflicts, Pete asked me to figure out if I could make something that would print the screens automatically. And so, without knowing how to code in VBA nor use Bloomberg, I managed to put a couple of programs together in which in one day a run could be started. Even though there were some bugs due to computer memory limitations, no one had to do the task, seen as menial, of copy-pasting and changing between the different software programs that were open. In this conflict organisational

issues, representation of educational capitals and the hierarchy of financial market products can be found. I was asked to avoid a further problem that had been based on these divisions. However, these do not tell us much about the general object. Why were these screenshots needed?

As said earlier, Bank F applied fair value measurements for the way it represented its bond portfolio in its balance sheet. The levels of fair value relate to the different types of liquidity, the first level being very liquid while the third means a completely dried-up market. A normal, level one, market value of a bond would be taking data from the Bloomberg terminal on the quotes of the counterparties and take an average. On the screen a price could be found for buying the bond, the bid, and one for selling the bond, the ask. By taking a limited set of the highest prices and the average price (the mid) of the different participants' bid and ask prices, the market valuation of the bond could be calculated.

Theoretically, the prices of the counterparties come from three different inputs, interest rate risk, credit risk and the specifics of the bond itself (what is the coupon for example). This led to the risks of the bonds divided between credit and interest rate risk. Interest rate risk is seen as a market risk. Since bonds are issued with fixed interest rates, changing interest rates in the market can change the value of the bond. The short term interest rate is the denominator of the net present value of a bond, thereby influencing the value. However, at Bank F they had decided to hedge the interest rate risk with interest rate swaps. Swaps had been taken out, leading to a fixed income of the bond as the sum of the floating rate and the counterparty risk. The hedging made it possible to manage the bonds in other accounting categories, like the available-for-sales or loans-and-receivables categories. In these categories, the bonds have to be priced at market value but the daily values do not have an impact. The bonds were categorised as a credit investment rather than an investment market one.

The credit risk was the second type of risk, defined as the possibility of the issuer of the bond to stop paying the coupons attached to the bond. However, the credit risk was not necessarily related to the financial market and could be seen as a general banking risk. In order to avoid the full financial market risks, the interest rates that were related to the bonds had been covered with the help of derivatives. The coverage was seen as a form of eliminating the interest rate risk.<sup>9</sup> Thereby the bonds could be seen as 'banking book' bonds with valuations related to the market but not with the daily management of the market risks. The bonds were classified in a category meant for possible

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<sup>9</sup>There is a lot to be said here about the difficulties of actually eliminating the interest rate risk and the problems that this strategy had brought with it.

sales of the bonds, available for sales or AfS. In this accounting category the gains and losses in the market can be added to the equity of the organisation, having thereby also an impact on the available capital.

A large share of the bonds had been categorised as illiquid and thereby valued through an internal model for years. Since after the 2008 trouble bond values had plunged, it had been seen as realistic that the problem in the market value could have led to such a devaluation of the assets that bankruptcy could have occurred. Therefore, the then head of market risk management and one of the quantitative persons on the credit side had made a new way of determining the value of the bonds. In an excel file and with the help of ratings, maturity rates and market values that could be associated to the bonds, the two had made a model that led to the model valuation of the bonds. In the model a spread would be calculated, on top of the basic value of net-expected cash flows that would come out of the bond. The spread is the value on top of this face value and theoretically comes from the two risks related to bonds, credit and interest rate risks. They had been able to implement this model because of an argument due to the lack of liquidity, saying therefore that these bonds did not have a market. The argument had been accepted by external accountants and regulators for years.

The model for valuations could be found in an excel file, with an almost uncountable amount of tabs. The file itself had been explained by Lydia, who took half a day to explain thoroughly how the model worked. With the help of ratings, the maturity (duration of the bond) and the country that the bond was issued, a price was established. When one would input a specific bond, these characteristics would all have default probability or specific value attached to it, leading to the final value of the bond. The only price mechanism that was used for the spread was a general index for credit default swaps, that were supposed to reflect the market of the bonds. It was the credit quant team had calculated the default probabilities for the specific ratings.<sup>10</sup>

The model had been used in times of extreme trouble and was put in place when the extreme negative bond valuations could have led to problems for the existence of the bank. That was seen as a right valuation changed due to these problems and in the years afterwards stayed because of the negative consequences that market valuations could have for the provisions. The market valuation that was recreated here only had a generic index that fluctuated and it the valuations hardly resembled the values that they could

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<sup>10</sup>The head of that team had explained that they made rating matrices based on different methodologies all in a trade-off between simplicity and accuracy. They would for example go from (ordinary) least squares to neurological networks, checking each time if the an accuracy increase would actually be worth it against the increase in complexity

have been sold for. While I was there, Pete had made a historical comparison between the model valuations and market valuations, showing how much the model had saved them from when. However, Valery had told Pete to delete the file. Even though Pete had been able to find some valuations, Valery did not want him to show that they might have been there. She had told him that the use of the model had only been because of the argument that there was no market price, so accepting that would lead to trouble. So Pete had buried the file in a drawer.

Even though there were prices, there was a market price, that was not the right market price. The market price of the illiquid bonds would have led to even quicker default and so to avoid that problem, the right market value came from a model.

After having used this model for several years, one of the central banks that was directly involved in the control of Bank F had told them that it was not good enough any longer. They thought Bank F did not use enough of the information available from the market. Therefore, the regulator had instructed to let go of the model and to use the full market value again. Both Pete, head of the market risk valuation team, and Lydia, who worked for him and worked on the bond valuations, had expressed that the only right value was the one that came from the market. They thought the central bank was right and that it was more than logical that the central bank had asked for a change in valuations. The model value had been useful, avoiding the problem of default. Now, the central bank told them to change the model and so they accepted their authority, which was similar to their own moral views of what a right market is. The change led however to two possible other problems. First of all, it led to extra work for the risk team. Secondly, difficulties might come around with letting go of the model.

There where in the beginning of the crisis a large part of the bond market would have caused for problems for Bank F, there were still difficult bonds on the books. One of the issues was the lack of buyers and sellers of the bonds in the portfolio. However, all in all the portfolio was stable and the amount of capital available was enough to deal with the capital requirements and valuations at that time. But might the valuations change, the capital position could come in danger.<sup>11</sup> In a normal bank, that was not in run-off, the risk might have been taken so that the gains of the market valuations could also have been taken into account. But one of the most acknowledged generalities in the bank was that the owners were not supposed to be asked

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<sup>11</sup>This capital position has to be seen in the change to Basel III / CRD 4 and the specific category of the bonds. Since they were in AfS, market value changes were not seen as results but as changes in the provisions and counted towards the Tier 1 Core Capital in Basel III / CRD 4

for even more money. That would only lead to trouble for the people working there since they would have to lead the owners on a slippery political slope yet another time. But the slippery slope of bond valuations that changed constantly was imaginable if all the bonds had to be estimated through the market. How to avoid this?

And so we come to the reason why the Bloomberg screens had to be collected. With the visual aids of the market provider and the characteristics of specific bonds, the argument could be made that a lot of the assets were illiquid, lacking buyers and sellers. Illiquidity was important because it was an argument to change the accounting category of the bonds. There where in AFS the market value mattered, in the new category, the hold-to-maturity category, market value changes would not matter. That way the changes in the market would have a limited affect to balance sheet values and required capital. So upper management, with the help of the financial strategy team, had decided that the bond categorisations could change. It was up to the team of market risk valuations to reclassify the assets. They determined which assets needed to stay in the available for sales category and open to the market value changes or in the hold to maturity category, with a fixed value not reliant on the whims of the market.

A couple of weeks after having installed the VBA programs for the Bloomberg Screens, Pete asked me if I could help out another time. This time it was not programming that needed to be done, it was the reclassification. With the help of the screenshots and the screenshots of the same assets the annual quarters before. But as I told Gerard, my colleague in the office, what my new job would be he said ‘But aren’t we supposed to have most of our mark-to-model bonds as hold-to-maturity? Why did he ask you to do this and not one of the experts in Pete’s team?’

Pete had asked me to reclassify the most obvious cases of illiquid bonds, sending back to him the cases where a market could be possible. There where I had received the ‘obvious’ cases, Lydia and David, both working in Pete’s team on bonds, had to look at the reclassification of the bonds that were more on the border between liquid and illiquid market. The objective of it all was not just the reclassification of the appropriate assets. All assets that could be appropriate had to be reclassified. The illiquidity check was a visual one, looking at the multiple bloomberg screens that were related to the security. On those screens the general characteristics of the bonds were given, the prices that were offered at the moment and the historical prices in the form of a graph.

There were cases where there were no prices given but there were others where it was much harder to determine if the market had really dried-up or become non-existent. Sometimes there would be offers for buying specific

bonds with prices that had already been quoted at the same level at previous instances or even new actors that would be interested in buying the assets. However, one or two actors would not make a change in the general idea that the market would be illiquid, the amount of transactions was not significant enough in a change of ideas of what the market was supposed to be.

Where in theory illiquidity is a bad thing, for Bank F the illiquidity classification became not the most negative one. The model used before my arrival, the level 3 classification, lead to a valuation seemingly more positive according to the participants. The model did not make any trouble so to say. The external pressure of the central bank, the ultimate regulator, had led to a change in this relatively positive usage of the market idea rather than the (alleged non-existent) market price for a reclassification where the market was left out. The latter was useful in the 'longer term', which had been jokingly called by Valery as within the year, since it could avoid a 'begging trip' to the owners.

And so I had to look through around a hundred different bond investments to see if there was a market or not. The indicators were the quoted prices, the liquidity scores given by the data provider itself and the historical executed transactions. Most of the bonds did not have any offers or even a page with information on the data provider and could be easily classified as non-liquid. With others it was a bit more complicated. Sometimes there would be multiple bids to buy and sell a bond, leading to a possibility of selling and therefore liquidity. Most of the times however, the bids had never been executed and no active deals had been seen on the specific bonds. This meant that there were no actual transactions and therefore one could reason there is no liquidity. With other assets, there might be prices that were indicated as being executable (showing a different colour) but there would only be one and when looking at the history, the executable bid had actually never been executed.

The instances of illiquidity I describe above were cases of clear illiquidity for the people working in Bank F (the less obvious cases had been given to Lydia and David), but even here one could argue that a market existed. It might not be at the highest point of its liquidity, but if you would want to sell the bond you could. If I would have wanted to, or if the people around me in Bank F would have wanted to, I could have argued that the market price was possible and therefore the bond was not illiquid. But that was not what I wanted to argue, I was supposed to argue that the bond was not liquid. So that is what I did.

In this case the market is established as long as there is a curve, a reconstituted aggregation of values (The Aggregation). If that was not the case or if could be argued that that 'curve' was not there, the bond did not have

to adhere to the value of a possible transaction but it could be part of the recreation of a market. Only through direct external pressure their ways had changed. The market as a complete reconstitution, the Internal Calculation, had to be abandoned but that did not mean that the rules could not serve the organisational purpose again. And so the determination of a market was fluid, in this case dependent on the need for stability of the organisation. The idea of the transaction itself, The Direct Interaction, as the market value was not even thought of. It was just not useful even though the regulator had requested it. Where the Ideal Calculation had been abandoned, the market concept of The Aggregation had been adopted, leaving bonds out of the set when price recalculations were more difficult to establish. Even though the illiquid bonds would have had a market in the form of a Direct Interaction, if there had only been looked at possible transactions, that would not have a desirable outcome. The Direct Interaction approach could have created trouble again by leading to possible devaluations and problems in the capital position. The desirable outcome of a stable value, not leading to capital troubles nor troubles with the regulator, made that the usage of the second market concept, The Aggregation, created the least troubles for the risk department.

## **8 Meeting on Models of Swaps - Do we have the right value towards our counterparty**

Whilst the bond valuations were about big numbers and relatively easy (visual) valuation techniques, the derivatives were a whole different business. It was a world full of models, market data recalculations and daily value changes. The same team of the bond valuations also dealt with the risk control of valuation techniques for swaps.

One of the meetings they organised was a meeting on the values of the swaps with regard to the counterparties. Daily valuation exchanges were made such that the cash collateral could be determined that belonged to the derivative. The cash collateral was that what the counterparty would get or need to put in a deposit such that in case one of the two actors in the deal defaulted (something imaginable for Bank F), the value of the derivative would not be lost. However, the valuations had to be done daily based on market prices of interest rates and internal valuation models. There were two meetings where the valuations and validations of models were discussed.

First of all there was the meeting on the models and their validation status. The finance department did not only calculate the values of the

derivatives through the models but also the validation of those models. They asked if the model is the right one. In the validation process, the model was tested to see if the price would be correct. It would be compared with other models that were seen as more robust to test if the price was right. As Emma, who had worked in validation of Bank F and was now designing derivative models at another bank explained:

Emma: So in the end, [the validators] do exactly the same work as [the modellers]. It is not just taking the proposals of the modellers and studying them, it is also, I make a counter proposal from my side [as validator].

So the validation of what was a right model and which model validations were more important than others was determined in a the Validation Meeting, while the second meeting on the derivative models was not looking at the validated and models that still had to be validated with regard to the prices the counterparties delivered, the Value Counterparty Meeting. That the last meeting, the VCM as everyone called it without explaining the meaning of the words, would take place came to my ears through Howard. Howard passed by our office multiple times a day in order to avoid working and to chat about his (lack of) salary, how annoying his boss was and how he so did not want to go to one meeting or the other. And so I heard about the meeting and so I asked if I could come. I had found out in the fieldwork that the meetings were the places where underlying frictions and problems came into the open and so I really wanted to go to this meeting on the values of the derivatives, which was one of the hidden subjects that few people knew about but that did seem to have a huge impact on the larger issues of liquidity provisions and risk measurements.

I had been able to enter this meeting with many difficulties since Janice, the organiser of the meeting, had not felt comfortable at first with my presence. Howard had send me the invitation, which I had accepted but without telling Janice directly. I also made a mistake in accepting an invitation without letting the organiser know, an option in the computerised calendar system used. I did not want to add to the infinite pile of email communications, so I did not click on that option. After having asked Valery, the boss, if I could come, who said yes of course you can come, Janice came into my office and expressed that I was wrong about the whole thing and that I should not come. “You should have told me and I do not feel at my best at the moment” she explained. I apologised and said that I was not there for a performance measurement and that I just wanted to see what went on. This left a truce but an hour later, Janice walked in again and expressed that

the meeting would be very technical. There was a continuation of back-and-forths, Janice showing quite aggressively that I was not welcome but in the end after some interventions from colleagues, I was able to go to the meeting.

Me entering the meeting did not start off on the right foot. The person who organised it, Janice, had made a lot of problems in the beginning and only after Pete, her boss, had explained to her that I was not there to spy on her, she let me enter. That made it alright. There are apparently very few people. The participants are talking about that, the people of the team that actually calculates the numbers with the help of the models are following a training course of finance. Besides that, the head of the quantitative modelling people(Frank) is here as well as five from the market risk management team (Valery the head of the team, Pete, Howard, Janice and me), as well as one of the calculation people, Steve.

The meeting took place in one of the larger conference rooms in the building, where many of the frequent social drinks were held. The table in the room was the most expensive table in the building, having been made by hand by a specific foreign designer. Sometimes people walked in by accident and Valery said: they are checking if there are no drinks organised here.

Valery, Pete and Janice, all from the market risk department sat on the left side of the table, while the rest sat opposite them (Steve, Howard who seemed to play for the non-risk side during this meeting, me and Frank).

Meetings were normally an assembly of people where the middle managers talked informally about the options at hand in a non-conflictual manner and the people in the lower hierarchy that attended would be quiet. Guidelines and governance that surrounded the meetings were hardly mentioned and people hardly talked about theoretical options, it was in general more a to and fro of what was possible and why things should be possible. However, the first thing mentioned in the meeting by Janice, not part of middle management, was that someone else was needed from the calculation team. And so the head of the market data team, Jules, was called and summoned to the meeting. The governance guidelines of meetings namely said so, which was enforced by Valery. Where Jules had informally told the others that he had not wanted to be at the meeting because it was only Janice that whined about problems, he came in the end. He sat next to Frank, making even spatially clear the different visions from the start.

And so the meeting started officially. Steve and Janice made the slides, Steve entered the numbers and graphs, Janice did the comments. The slides are handed out at the meeting and walked through one by one. It is Steve that presents the values in the slides, starting with the first aggregated data about the values of the swaps, which does not look to rosy meaning therefore also a lot of cash going into the collateral deposits. But the calculation is separated into the structured swaps and the vanilla ones. This leads to a discussion of the second slide where the measurements of what a 'bad' valuation is are discussed. Janice has proposed a new measurement to investigate the swaps and their counterparty difference. There where currently only the ratio of the difference in valuations with other counterparties was important, the new ratio would be adjusted for the amount of money that was actually on the line for the swap valuation. The discussion however started there with the two options of value that were given by Janice. One was the nominal value, preferred by Janice, while the other was the market value, preferred by Valery and Jules.

Janice: Yes but the mark-to-market changes constantly, so that is not useful

Valery: Yes but the mark-to-market is the risk you take

Jules: Yes, that is the risk. But if we have an error in the mark-to-market than that has a huge impact.

The objective of the ratio had been to see what happens around the nominal value according to Janice, and she continued saying that at one of the derivatives the basic ratio a good one was but the nominal exposure actually made it a problem with regard to the counterparties. In the end the person with the highest rank at the table, Valery, decided that the mark-to-market ratio needed to be chosen because that was the objective of the exercise in the end. No one protested, the management decision was accepted.

The conversation above represents the main differences between those wanting the mark-to-market values or the nominal or historical ones. A fair value, or a market value determined by the market, changed constantly while a nominal or historical value fluctuated less. But the market value was seen as the right one, the one of the true risk exposure. According to these practitioners, the market gave the true value, similar to the accounting standards.

And so we continue with Steve, Janice and the rest into the discussion of the 'problem' cases of the swaps. They were problem cases because of the difficulties to have the same value as the counterparties.

Steve had explained his work to me earlier and how he looked at the swap valuations and the models they came from. Some types of swaps were

easy to calculate while others were much more difficult. In some cases, the market data team was working on making market data available. In practice, making market data available meant in that they were working on recreating curves based on ideas of what a market should look like. An example were the volatilities, in these cases of interest rates, that were supposed to have the form of a smile, which was what they expected from the implied volatility calculations. However, not all curves had a smile and the team was working hard to implement it there where the stakes were high. The smile shows the importance to recreate specific market data in a form that is accepted. In this case the market was like The Aggregation, taking all the available interest rate volatilities together and manipulating them as such that a concave curve would be presented.

Another aspect and a headache case for the whole risk department was the calculation of the short term interest rate. Where before 2008 the market had After the crisis of 2008 the market had changed from a discount rate based on the three month Euribor to one that was based on overnight banking rates. As the liquidity had dried up in the system, the daily rates became more and more different from the three month rates.

Apparently in the days after Lehmann Brothers had fallen in the autumn of 2008, some banks that were seen as the biggest players and market makers started calling all banks asking for 'quotes', the rate of a swap, to know if they were able to price with the daily rate rather than the three monthly one.

However, for the overnight banking rates, Bank F did not have the right data available. Changing from three month index to an overnight meant a change in the discount rate. Discount rates are key in most valuations of financial assets since they actualise the future cash flows to their current value. This led therefore not only to the change of one curve and related organisational steps but it meant a full change of accounting and IT systems. At first the organisation had not wanted to make the investment to this infrastructure change but in the end they did and the project had been going on for more than a year and where it was supposed to be finished during my internship, in the end it was not and had to be continued. The overnight ratios were a discussion point with counterparties on the prices, and would be an excuse for a possible difference between the two. Steve:

And sometimes there are disputes. Than you have counterparties who say, attention, that is a large difference on that deal there. Afterwards it is the back office that sends us an email, and we then explain that the difference is due to the discounting between 3 month Euri- and LiBor and overnight rate. But after-

wards the counterparty would ask every day: When are you passing to the overnight rate? when are you passing to the overnight rate? When are you passing to the overnight rate?

So in order to avoid a dispute when the difference would be too big, there was the option of the overwrite. The value taken in such cases was the one given by the counterparty the day before. This way, by using data available from the Direct Interaction, a problem would be avoided with the counterparty.

Steve: “So we take their value of the night before and we say, this is our value.” [..]

Me: And do the counterparties know?

Steve: Some of them have found out, yes, but we do not manage to price them so we need to do something. [..]

Me: And is it always the day before?

Steve: Yes, it is always the day-before. Because if we go too far then we have too big of a difference and then there will be a dispute.

The way the prices in these incalculable cases were taken is a simple representation of what was expected by the counterparty, the value of the deal was the one as expected by the counterparty (The Aggregation Market concept). It was seen as lamentable by Steve that this was the case and showed problems in the internal reproduction of market prices, of that what a market is supposed to look like. However, since a number was supposed to be given and a dispute about the number was not preferred, the calculating people knew what was expected as a fair value. So the value that was taken was the one of the day before, fulfilling the expectations of the swaps' values.

The Value Counterparty Meeting continued to the actual discussion of the different families of models whose distance to the counterparty values was too high. The ten most extreme models were discussed and the differences presented in a graph each counterparty's ratio to the base line of zero, where no difference in values could be detected. Not always were the counterparties in the same cloud and certain counterparties seemed to be always relatively close to Bank F.

And so the values were discussed with regard to the different counterparties and Janice took charge of the meeting, discussing autonomously what she thought was wrong with a specific methodology and how the counterparties could be approached. For the second family of derivative models,

the constant maturity swap<sup>12</sup>, where a changing short term interest rate, the floating rate, is exchanged for a fixed interest rate with the counterparty but other than a general, or vanilla, swap, the floating part is resetted from time to time into a new floating rate. So the floating rate is short term but is recalibrated after specified periods.

Janice saw huge disparities in this family and thought that the correlation calculations were the cause. Frank, the quantitative modeller who was responsible for the modelling of the derivative models on the front side, did not see a big problem with this family because in the end, Bank F had values that were below and above the counterparties so where did the problem lie?

Janice was strict and determined, if the correlation is changed then we will approach to the counterparties values. Her colleague Howard, in the same team but in this meeting almost trying to constantly undermine her, was exploring the idea that a change in one parameter would change some other 'Greeks'<sup>13</sup>, leading to trouble.

Jules also added to the discussion, saying that the Janice's proposal, to add a historical correlation did not make sense. He discussed how some of the counterparties did trade this object and therefore had access to the implicit correlations, whereas the lack of trades at Bank F and the invisibility of the trades of the other banks made an implicit correlation impossible. For Jules, a change in the methodology would mean extra work, something that he seemed to want to avoid.

But Janice continued and explained that the historical correlation would be better, she had even done a comparison and showing how the values approached each others. Jules showed his resentment, adding the argument that the historical correlation could go any way, leading therefore also to another type of modelling. Janice accepted the premise that the implicit correlation was better but Jules said that we could not do. Jules: "yes but we also know that the historical correlation is not good but that is a hypothesis that we'll do and there is no market consensus so everything is possible."

Jules and Janice continued on the if it was a good idea to calibrate the historical correlation (Janice) or not (Jules). After some back and forth, we continued and came to a currency swap family.

Janice: This is the culmination of ..

Valery: The apotheosis..

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<sup>12</sup>The type of family has been anonymised to avoid conflicts and ethical problems

<sup>13</sup>Greeks is what the parameters of the value calculations are called in finance. They are mainly a specific order derivative of the curve as it is presented

It turned out that this swap family was the last one to be discussed in detail and there was a clash between the two sides of the table. In the discussion, both peoples' position of personal preferences (it was a true who likes whom), organisational possibilities and visions of what the market is supposed to be became extremely clear. There was animosity between Janice and the men in front of her, partially because they found Janice arrogant, aggressive and difficult to work with.

For some counterparties there were no big discrepancies, whereas for others they were huge. So the question was how a change in the methodology of the swap valuation could make the values would be much closer. Janice had done some research and had found that the correlation calculations should be different. In the analysis three different variables were discussed, the volatility, the correlation and the simulations that were carried out for the value determination. She had found that if a correlation of type B would be calculated, a historical correlation rather than type A, an implicit correlation, the values would approach the counterparties.

This is where the men on the other side of the table (Jules, Frank and Howard) started to chip in, contradicting Janice and showing that they did not want the correlation to change.

Jules: There is a problem with the control mechanism in the production of the correlation. We seem to have two correlations but they are the same. But it are the volatilities that are really problematic to me, they contain a large jump between them.

Janice: But I have looked at them, they are fine, homogeneous. It is the correlation, we underestimate the price so the correlation of the counterparties is lower than ours.

Jules: I do not know what you think of it Frank, but the correlation A is the best one.

Frank: Yes, it is.

Jules: So why would we take correlation B? If we only take the historical correlation to lower it, I do not think that that is the right approach.

*Howard chipped in, helping Jules, in how there was a theoretical arbitrage possible with correlation B*

[..]

Frank: It is possible the market standard is Correlation A but it can be that the simulation techniques of the other market operators are different, making a completely different valuation.

Jules: And if we would change the correlation on this currency swap family, we would also have to change it on the currency swap family F.

In the conversation, market practices, prices and counterparties are not the same. The idea of what a market is, is not directly related to the transaction of the swap, it was related to what the right models would do. At the same time, Valery and Pete were dreaming away, showing very little interest in the discussion of what a better correlation would be.

Frank: There are more than three variables that can determine these price differences.

Janice: Yes but I have tested those, they are not it.

The discussion continued, went into why the volatility was not changed and Janice keeping her point of view, adding arguments every time why it was Correlation B that had to be used. Then there was the question of the model. The model itself had been validated and Jules used that to say, well, we should just not change the model.

Jules: As long as modelling has a model that is validated, then what does it matter if we approach the counterparties or not?

Here both Valery and Pete woke up. The counterparty was important for them, maybe more important than what the model guys saw as the ideal model.

Steve and Valery in unison: No it is not 'who cares?', it is important to be close to the counterparties.

Howard (arguing against his own superior): Well we know that a model has a model risk. And yes we have a problem with the market data that are calculated (as Jules had said in the beginning) but as long as we are in line with the market, than we do not have a problem (Correlation A). If we are in line with the market than they cannot say that we are wrong.

Jules continued and held a discourse in how he agreed with Howard. At one point he was countered by Pete.

Pete: So all our counterparties are wrong? No, that is not possible.

Jules: But I need to know what the driver is. Should we have methods that are in line with the market? Than it is Correlation A and we will do our best to improve that number. However, is the driver the counterparty itself, then it should be Correlation B.

[...]

Howard: But we do not want to just stick to the counterparty.

Pete: Yes, that is what we want, we want to stick to the counterparty.

Valery nods but adds: Well, yes and no, what we want is a price first of all. and secondly that in case the counterparty starts to make trouble, we can actually argue and establish our case. We want to be able to 'deal'. It does not matter if the methodology exactly right in a document, I want the price that is closest to the deal. I want something that I would be able to explain to my clients at the desk.

And so the final decision was made, the driver was chosen, the objective of the methodology. The words of Valery ended the discussion. What she wanted was a price (something that was already difficult to obtain in certain cases) and secondly she wanted to avoid trouble with the counterparty. Representing the true ideal market value with an implicit correlation, as proposed by Jules and Frank, was not necessary. What was necessary was to be able to convince the counterparty in case of trouble that the right value was calculated by Bank F. One way to do that, Janice's proposition, was to stick to the counterparties' values with a historical correlation.

Jules' position in the was one of not wanting to take on any more work. Most of the times namely a change in the calculations of the variables of a derivative valuation would mean extra work for him. He would have to produce the market data that was related to the variable, leading to new models having to be implemented in the production process. His team already had quite a lot to do, especially since many of the changes that dealt with the implementation of the 'new' interest rate base, the Overnight index rate that was there to replace the discount rate, were carried out by his team.

Afterwards, Janice actually thanked me for being there and said: 'They were tough, are they not? That is why I had actually made the study on paper. What did you think?' And I agreed about the toughness of the rest. She went on how my presence had actually made it less difficult, less conflictual. This was completely the opposite reaction from the one in the beginning but at the same. I was glad that I had been able to help out, and

actually felt sorry for this lady who had four men in front of her that had just not wanted to know anything from her proposals.

The discussions at the end of the meeting on the currency swap show two visions of what a market price is supposed to be. On the one hand the people dealing with the calculations of the prices saw them as something representing the mathematics that the market had decided upon as the right thing. The smile of the volatility calculations is an example of that, which is a smiling form of the curve which cannot necessarily be seen in the historical volatility of the market but which is part of the modelling practice that the people providing the 'Market Data' carried out. These were markets of Aggregated Curves and Ideal Calculations, where the calculation itself needs to represent an expectation of an ideal market. Choices between the two, a historical or a implicit volatility were made on preferences as well as objectives. Both Jules and Frank preferred the model that was already existing thereby avoiding extra work and not accepting Janice's premise, who they disliked. They, even though the discussion was about why one method would be better than the other, made a theoretical argument that worked in their favour. They would have avoided extra work if they would have gotten their way.

Another concept and interpretation of the market was expressed by Valery and Pete. Their lack of interaction in the debates and Pete's remark before the meeting ('It is not very important'), showed the lack of importance for them of the actual fine-tuning of the valuations. However, what was important was the actual transaction, the value with regard to the counterparty. Yes, in that negotiation the mathematics was a good argument, but in the end the value had to be relatively true to the one of the counterparty.

The market concept presented by Valery, was the one of the Direct Interaction. In the end, the valuation is part of the market relationship between a buyer and a seller. In a swap that is collateralised and therefore has a daily exchange of value between the two owners of the swap, this relationship is seen in the daily ownership of the product. In the case of the bonds described earlier, this market is seen at the moment of buying the object and when selling it and maybe when it is used as collateral in order to obtaining credit. This market reality has different characteristics from the one previously mentioned. As the situation described above shows, the Direct Interaction has a one on one relationship. There it is the other that needs to be convinced, and vice-versa, that the conditions are right for the specific sale or valuation. That can go from making the mathematical background understandable to a price that just resembles the one presented by the other. It differs from the market concept of the curve, where it is the general accepted ideas of how the calculation is supposed to go and which numbers go into it, that makes the market price. The transaction is not key, it is the mathematical standard

and the representation that matter.

Afterwards, I discussed the whole day with Pete on an informal basis. We talked about the meeting, that Howard had been able to add multiple points in the debate which he had called Market. But the market there was the idea of how a market was supposed to look like. Pete noted this as too theoretical, whereas Valery her viewpoint was based on her experience as a trader. It was the latter where the market was a negotiation rather than the market as an entity in itself, the transaction versus the curve. And Valery was pragmatic, she did not want trouble. As head of the team she had decided that conflicts had to be avoided and therefore the counterparty was supposed to be convinced. The Aggregated or Ideal Calculations as markets did not work in that setting since they might bring conflicts with the counterparty.

## 9 Answering the Right Asset Risks

Fair value measurements in insurance risk were not the same as in banking. The risk department was much further away from the financial market. It therefore had no dealings with the exact valuation models of the assets but it did some of the work of the financial department in making the provisions market based.

Fair Value measurements in insurance's risk management are a completely different question from the one in banking. Risks were calculated on a long-term basis. Calculations of risks were not on the assets and contracts as in Bank F, they were on the balance sheet as a whole. In the end, the risk calculations II resulted in a final regulatory capital amount as required by Solvency II.

At Insurance Company V, multiple calculation steps led to a final simulation of the balance sheet items through which the final regulatory capital would be defined. The calculation parts were both local and at group level, independently of each other delivering number sets, ending up with a final simulation with the help of polynomials of the balance sheet categories.

Within the calculations of risks on life products and financial assets, the fair value component was important as Solvency II had required insurance companies to adopt to market valuations. However, what does the market give and how do you make something that would resemble a market price? "What would Mr Market give", was the question that Jane put forward in explaining her work on the first steps of market based values in insurance. She had worked on the question before Solvency II was adopted, implementing the calculations that went along with the market ideals. These market values were calculated with the help of stochastic calculations, approaching

according to Jane the methods used in finance. Jane had worked on the quite theoretical simulations of the methods and had tried to convince the people in the organisation calculating tariffs and provisions that this was a better approach. Better in this case had meant more accurate according to Jane. When the project succeeded and Solvency II also moved in the direction of fair value calculations, Jane continued on the pilot implementation of the internal risk model.

So how would Mr Market give you what? Well, lets make stochastic based risk factor calculations. That way an ideal typical market is calculated, related to the mathematical approaches used in banking.

In the daily work however, the market was not there. Stochastic rates were not calculated by the department and they would just be inputs in the models handled locally. The market was hardly talked about . There might be a reference to valuations but even the people working on the financial risk side hardly referred to the market. That did not mean that the market was not there. In the work of the risk department, the market was hidden.

When working on the financial asset risks as well as on the risks related to the life products, I assumed the asset polynomials as a ‘normal’ regression-type polynomial calculations, based on real life data points. However, that resulted in abject reactions around the table with people looking at me and shaking their heads.

During a meeting where answers had to be given to the regulator, I had scratched the surface and the market came out. By reasoning with general statistical knowledge I was corrected by the others. It was a market world, not a sampled one.

The regulator had posed what they called questions, but they were more comments and requirements disguised as questions. They were quite theoretical ones on the design of the risk model for the assets and not necessarily on the results of the model. An example of such a question was why one statistical selection criterion had been selected over another? The questions were quite detailed and not based on the results of the model but mainly based on the technical design. This led to some organisational problems in answering. The regulator worked on the approval of the model both locally and on a European level. Per general business part, the life, non-life and investment sides, the models were part of the approval process. The division I was in therefore worked on both the investment model approval and the life model approval. The problem with the investment model was that it was developed and managed at the group level while locally the investment model was controlled. This led to the people in the country office, where I was based, lacking information. They had the formal information of the documents and the explanations there but the regulator had those as well.

It were in fact those documents that the regulator had based its questions on. What lacked was the informal knowledge and tacit knowledge of why the specific choices were made and how one worked with the calculations to retrieve the final result.

The local people were not able to answer all questions therefore but at the same time they did have to. We managed to get the group level involved but they were not as forthcoming as the local department had wanted. While the requests for explanations had been sent out quite some time before the regulator expected answers, some weeks before the deadline the group had still not sent sufficient answers. Some back and forth had taken place, including some information to a few questions, but that was not sufficient in the eyes of the people in the team to be able to answer to the local regulator. It was clear for the people working in the team that the group did not see the answers as the highest priority, there where they were seen as most important for the local entity. The manager of the life risk modelling team, Alice, who was at that point also in charge of the answers to the regulators on the financial side, expressed that her priority was to answer the local regulator, more important than questions from within the organisation. Not everybody agreed with these priorities, for example Brad who worked on the financial risk model locally, preferred to answer to the group before the regulator. There seemed to be a question of personal career possibilities for these preferences. Brad had worked for the group and did not seem to really like the local entity whilst Alice came from the group but expressed her alliance to the local organisation.

The difficulty in the responses from the group led a month before the deadline to a meeting in which all questions were discussed, not only the ones that were officially the responsibility of the local team. The questions initially seen as the group's responsibility were now reassigned amongst the team and during the meeting the general approaches to the answers were looked at. The regulator had requested an answer and so even though those seen responsible did not deliver, the local team had to give them answers. And even though this was not explicitly mentioned, the answers had to help the model approval process, not work against it. As the local head of the whole risk team had expressed in an interview about her work and relationship to the regulator "As a risk manager you do not say to the regulator that the model does not work."

One of the questions seen as group responsibility but that required an answer was on the calibration of the polynomials in the process. Alice, Brad, Vicky ( who worked with Brad on the financial risk side), Joey (the financial risk intern) and Barry, a consultant from an international insurance consultancy firm, were all part of the meeting, that took place in Alice's office.

While thinking about the concept of over-fitting I pointed out that we could easily see that, using a sample of the historical data. Over fitting was possible I thought, it could not work on a new data set. However, I was then put in place by a consultant present in the meeting, who told me in a small phrase "no, but [the polynomials are] market conform", which made my objections illegitimate and even a bit stupid. Alice looked at me and shook her head. I had said something wrong that was not even debatable and the rest of the meeting I had lost my credibility.

Barry the consultant continued on the market conformity and made a point in how over fitting might actually not be possible in the market based environment created by the specific polynomial determination. Can a polynomial, based on stochastic simulated data points have an over fitting? The data points used for the calibration and validation of the polynomials were market conform, meaning that the entirety of their sample was to hold all market information in it. The data points were stochastic points, the representation of the market with a random walk. Therefore, Barry put forward, is it possible to over fit with the market knowledge of complete information? And Barry thought not, he thought he could make the case against over fitting based on the argument that the amount of simulated market conform data points contained full information. No one in the room had an argument that was as fluent as Barry's and so he was given the task to explore this further. The meeting had to continue and Barry seemed to know what he was doing.

Even during the meeting, I thought that this was not possible but since I had already shown incompetence on the subject I did not want to show any more. Afterwards I mentioned the point to Vicky, do you really think this is possible? She expressed her concerns, saying that she was not convinced but still, it might work.

I got elongated from the project on the answers to the regulators and did not see the final discussions on the over fitting. However, in the final report, the market conformity argument was not used. The final answer on over fitting was tabled, promising a study in the written documents to the regulator.

So how did this work, what were the objections of the regulator and what does the small failure of being knowledgeable in the area prove about the larger aspects of market conformity?

The market concept of complete information was used in the discussion on what a good polynomial was. The regulator had asked the question on over fitting and it was up to us to decide how we could respond in such a way that there was no over fitting. If this was not possible, which was the case in the end, an answer was given to show that it was dealt with responsibly.

In the process of answering them, no questions were asked about in what way they were supposed to be answered, namely in showing that the model was able to answer to the questions in a positive manner, de-mantling the argumentation of the regulator and proving that the right way was the way that Insurance Company V had put in place its model.

Fair values and the market based values that were used in risk management could come out of boxes once in a while, where needed. The daily practices did not really use the idea of a market. Since the modelling of the risks was based on several stochastic inputs, the concept of a market and its utility could come forward in case it was useful. The market concept used here was one based on the theoretical concept of what a market was, without a transaction in the calculation.

## **10 Conclusion: Usages of Fair Value in Risk Management**

The situations that are described above show the making of market values. They show how risk management avoids problems within the legitimate framework of fair value measurements. By using different markets as basis' for the calculations, risk managers are able to keep the organisation out of trouble. Actors that can bring conflicts with them, like regulators, owners, external accountants and counterparties are continuously appeased in the search for the right value.

All of this puts into question concepts of market devices and risk as control. The first because the above shows that methods and values are determined based upon a need for appeasement rather than a search for the ideal economic value, whereas the control aspect of risk can be questioned due to the ambivalence of the right value.

The right value comes from a set of different market usages. The bond values, derivative models and asset polynomials were all calculated using market concepts. The market concepts ranged from something related to the transaction process itself between a limited amount of actors and to one that does not relate to any transaction but to an imitation of the market. The idea of fair value in accounting, through these three different market usages, comes forward in risk management and is used to avoid problems. Problems could come, amongst other things, from not listening to the regulator, not having an appropriate model for the regulator or not having enough value on the balance sheet which would lead to bankruptcy. Besides that, people might have personal preferences for a right value but in all the cases described

above, external pressure trumped such morals.

The first market type, The Direct Interaction, could be especially seen in the risk management practices of the bank. The usages of the valuations of the counterparties of the day before to value your own derivatives is an example, as well as the need to be able to explain to the counterparty that the method was right. In the case of the bond valuations, a bid and ask price that would be shown on a Bloomberg screen are an example as well.

The second market concept, The Aggregation, can be seen in an interest curve that is recreated or a valuation curve represented in Bloomberg. The third market concept is The Ideal Calculation and could be clearly seen in the calculations of markets in insurance risk as well as through the internal model for bond valuations that was adopted in Bank F.

But when is which market used? Or when is it used at all? Of course, as the dialogues between Valery, Janice and Steve show, there were personal preferences from the different people around the table. However, when looking closer at the choices being made for the different valuations we see a clear need of the risk department to avoid problems. Problems arose with the representation of methods and balance sheet numbers if either other market participants, owners or regulators would start to go from questions and cooperation to a conflictual standpoint. In the negotiation of a derivative price, this is very clear. If a counterparty can be convinced to accept a method and a price there would be no dispute, there would be a cooperation. However, if the counterparty thinks the price is too far off a dispute could be started. Similarly, the question of the regulator on the insurance asset risk polynomials was cooperative. They were asking to be convinced. Risk management had the task to convince them and thought of the possibility to do this with a form of market risk reasoning. However, at the same time not being able to convince them would lead to a problem. The regulator could go from cooperative to conflictual, saying no we do not want your model, leading to possible problems with shareholders since it might lead to higher capital requirements.

So when the concept of fair value is seen in the practices of risk management, it is not necessarily a question of the right value. It is one of making sure a problem is avoided. The representation of the risks (numbers and calculations) and values needs to be right such that the people seeing them, shareholders, regulators and counterparties, accept them as right. The way the representation is determined comes from different choices made in different instances. In the cases that are described above three market concepts were used to make the representation cause the least troubles.

The conclusion of the above described situations and market representations can help understand both the idea of risk management and the concepts

of market representations. If the market values that are put forward are part of an organisational concoction where risk management uses multiple market concepts, what do they mean?

First of all, the question of control by numbers needs to be put into question. There where the idea of governmentality through accounting and through risk management is mentioned, one can see clearly in the above examples that it is not risk management that controls. They work with the things they are supposedly controlling, like risks and values, to make sure that they do not cause a problem in the representation. The ideas of control by numbers and indirect control through risk management's output are not shown by this research. Risk management is both responsible when problems are realised as well as for calculating the categorisation of the different types of risks. This leads to their involvement in the balance sheet's representation of health. Other than the panopticum that is untouchable for the spied-upon, this research shows that since the organisation can determine the looking glass, the control is not necessarily there.

Secondly, it is not the ideal economic model that makes the value. The calculation that one ends up with is the one that avoids problems with other actors. The value might be based on economic theory, since that is the legitimate calculations. However, in practice the theory leaves open a lot of space for choice. The model does not determine the market, it is the result that determines the choice of the model. In case the result would create a conflict with for example a regulator or put into danger the existence of the organisation, a different method is found.

Therefore one has to conclude the following. Fair value is not the right value but it is the right value under the right circumstances. The question of making valuations is not what is the right value, it is how do I get the right value, the right calculation or the right reasoning. The answer is already most partially known. The framing of the risks and values is done in such a manner that the interlocutors that have to look at them can be convinced. The market that fair value represents is mainly a second order observation, in some a first order observation. It is used to make sure the organisation's health is guaranteed, not necessarily though the organisation's actions but through its representation.

### *Discussion*

One of the topics not discussed in this paper is the question of performativity, or the making of values and risks based on economic theory. In the data presented above, the theoretical background of the reasoning of the participants was not clear. If one would want to answer a question of clear further performativity, more research into the participants backgrounds and

methodological reasonings would be needed.

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# PARI

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## PARTENAIRES

