

# **Information collection and disclosure**

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## **Abstract**

This paper examines the issues related to the public disclosure of information on aggregate market risk. While such disclosure might be expected to enhance market transparency, problems inherent in the proposed methods to construct such information and time delays in disclosing it would in fact reduce its informational value. Meanwhile, the direct cost of disclosure is identified as possible behavioural distortions through market participants misinterpreting the data or even an attempt to avoid regulatory reaction. Overall, the cost of collecting and disseminating the information would outweigh the potential benefit.

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\* The views expressed in this paper are the authors' and do not necessarily reflect the position of the Bank of England, the Bank of Japan or the Euro-currency Standing Committee.

## **Introduction**

This paper examines the issues related to the public disclosure of information on aggregate market exposures. Such disclosure might be expected to enhance market transparency to the extent that the information disseminated revealed anything about market dynamics and the robustness of the financial markets to shocks. We first ask whether the proposed methods such as those based on principal component analysis would succeed in capturing the important elements of market risk and whether it would convey information on robustness of markets. Furthermore, time delays in collecting and disseminating the information cannot be avoided. These and other problems would reduce the informational value of such aggregate information considerably whether or not it is disclosed to the market. On the other hand, when it is disclosed, the direct cost of disclosure could be various behavioural distortions. We discuss the conceivable measures to minimise market distortions, which might include the central banks' commitment to the data generation process. Even if commitment were possible, our overall assessment is that the cost entailed in collecting and disseminating aggregate market exposures would outweigh the potential benefit.

In this paper we look at the possible value which information on aggregate market exposures might have for the central banks and whether the market participants and market users would derive benefits if the data were published.

## **The data**

This section looks at the issues which would arise if the central banks collected information from market participants on a periodic (but not frequent) basis on the following:

- The exposure of each firm to market moves given a number of scenarios covering the main markets (probably concentrating on market risk rather than spread or basis risk ). The scenarios could either represent statistically significant changes in prices across a number of markets or could be, for example, sizeable moves seen in the past - eg October 1987. The third option would be for the central banks to specify forward looking stress tests.
- Alternatively the central banks could collect information on the sensitivities of the individual portfolios held by the firms to changes in prices. The effects of particular scenarios could then be calculated by the central banks.

The information which would be disclosed to the market would probably be the aggregate exposure of all entities operating in a particular market to a particular set of price shocks. One issue is whether the full details of the scenarios should be published. Another issue is whether some indication of the distribution regarding the results across individual firms should be published.

## **Usefulness to the central banks**

One question is how useful this data would be to the central banks themselves. One area where it might possibly be helpful would be in giving a better indication over time of the behaviour of the market participants in terms of the quantum of risk being run and the exposure to particular types of scenario. In order to provide this time series, the scenarios would have to be consistent over time or at least calculated on a consistent basis. One danger would be that the level of risk being run could be understated and shifts in the type of risk being run could go unnoticed if the scenarios did not, as they almost certainly would not, cover spread risk and different types of basis risk at all or in a sufficiently complex way. In other words the scenarios would not be sufficiently sophisticated to highlight the exposures given the type of risk management we are now seeing. It might however be possible to specify more elaborate scenarios, in terms of the effect on a range of instruments in a particular market, by using past examples.

Another issue is whether the data would tell the central banks anything about the robustness of the markets to particular shocks. Because the central banks would have the information on the effect of shocks firm by firm it would be possible to look at the results in terms of the quantum of capital at risk and likelihood of particular players failing. The information would be a starting point

but clearly would not encompass second or third round effects which in a crisis would determine the eventual outcome-for example the effect on clearing houses, or gridlock in markets. Conversely it could exaggerate the risk because exposures are constantly being altered in the light of market conditions. The scenarios would be independent of current conditions and therefore the books being held could be quite different from those which might be held preceding a market break of the type assumed in the scenario.

In terms of understanding the likely dynamics , the information on exposures would only be partial covering only the players at the centre of the market not the large investing institutions whose flows would dominate the market in a market break .

It is important to note that reporting burdens have been reaching the limit of tolerance at each institution and the central banks are expected to offer benefits for the markets as well as convincing reasons for carrying out such an exercise.

## **Disclosure to market participants**

This section looks at the benefits to market participants (ie the trading firms) of the disclosure of such information.

The objective of disclosing the aggregate risk measures would be to help individual market participants and market users make more efficient decisions by reducing uncertainty and incomplete information. One issue is whether the disclosed information would provide useful material regarding the robustness of the financial markets, to the players and users-ie, whether it would contribute to mitigating the problem of asymmetric information. Clearly given the delay in releasing the information it would not improve the understanding of the current exposures in the market nor would aggregate information probably provide much illumination on the question of exposures of individual players. But knowledge of the past patterns of exposures, as well as the effect of given shocks (in aggregate on all participants) on those exposures, could possibly enhance participants' and users understanding of market dynamics thereby affecting expectations about the effects of future crisis.

If the aggregate data did convey information of this kind then the measures (if disclosed by currency, market segment and reporting institutions' nationality) might influence the allocation of economic capital between markets or at least the way in which a firm chose to deploy its capital in a particular market, in terms of the positions the firm was willing to run. For example, indicators of the aggregate exposures in a certain region could possibly help individual institutions to improve their strategy. However, this should not be overstressed given the snapshot nature of the data. In order for firms to make any use of the data the scenarios would have to be disclosed .It is probably desirable also to disclose the way in which they are generated (see below).

However, the aggregate data could be disclosing profitable strategies being run by some market participants, undermining their ability to continue to run those strategies. Although for this to be the case the market would have to be quite concentrated and the strategies would be quite long lived.

It is also possible that the disclosure of such aggregate information could distort the behaviour of market participants. Distortions could have multiple causes. Uncertainty about the procedures the central banks followed in deriving aggregate risk measures, variations in the disclosure schemes over time and so on could lead market participants to react in an inappropriate way. In other words the firms could read into the data messages which were not correct and adjust their behaviour inappropriately.

There could also be a danger that the market participants might misinterpret the implications of the data. For example, if players believed that the outcome of the stress scenarios showed that the authorities would have to provide support to the market or firms in certain circumstances (although it is not clear that they could be interpreted in this way) then some players might not make adequate efforts to avoid such an event by curtailing their risk exposures (moral hazard). It is not clear how real a danger this is nor, if it is real, whether it can be overcome.

In order to reduce adverse behavioural effects in terms of misjudging (or even judging all too accurately the intentions of the authorities) it might be necessary to fix the methodology used for the scenarios. The danger with changing the methodology would be that a change could be interpreted (quite possibly wrongly) as a signal from the central banks regarding their current concerns or inherent rate policy intentions, which would be potentially distortionary. This would clearly be exacerbated even further if the central bank set forward looking scenarios or specific ad-hoc scenarios which could become self fulfilling.

It would also have to be accepted that snapshot data of this kind might not always be immune from understatement which could create distortions. Some firms in some markets might be tempted to run lower exposures over reporting dates. But in terms of *aggregate* disclosure (across the whole market) a firm would have to regard itself as extremely large and atypical in order to fear that the aggregate information would convey unwanted information to the market and encourage other firms to counter-adjust their positions.

If the figures for any market revealed very large aggregate exposures to particular stress scenarios, then all the firms in that market could be viewed as equally risk taking. Firms would have to be able to signal their own internal position -ie publish what their own exposure was to that scenario. In order to do this they would have to know what the scenarios were.

## **Disclosure to market users**

A separate question is whether investors would benefit from access to information on aggregate exposures of players in the market to particular scenarios.

They would clearly have an interest in the robustness of the players with whom they were dealing but the same arguments apply as for the market participants-that disclosure of aggregate statistics would provide little information on this outside very concentrated markets.

They also have an interest in information on likely market dynamics in stress periods if these dynamics could be construed from the aggregate data.

Some investors might also be interested in any information which revealed profitable trading strategies of the market players which could be imitated.

## **Evaluation of the two approaches**

The critical task in the design of disclosure is to balance the two conflicting forces: enhancement of market transparency on the one hand and the danger of market distortion on the other.

### **Price sensitivity approach**

Under this approach, the scenarios are not revealed to reporting institutions at the time of data collection. But when the aggregate measures were disclosed the decision would have to be taken whether to publish information on the scenarios or not.

For reasons of transparency and to reduce the likelihood of inappropriate behaviour adjustments it would be necessary to disclose the scenarios. There would also be reason (as set out above) to keep the scenarios, or at least the methodologies, fixed over time.

However, the incentives for market participants to fine-tune their exposures are probably reduced where the scenarios are unknown at the time of data reporting.

Theoretically, it might be possible to circumvent the problem of revealed scenarios by preparing *multiple* sets of scenarios to be used in the calculation and by *randomising* over the set. For example, suppose there are five sets of scenarios in the hands of the central banks. When the reporting institutions are required to submit their sensitivity data they are not informed about which set of scenarios is to be used in the current calculation of the aggregate risk measures. One of the sets of scenarios is chosen and the aggregate measures are calculated by the central banks using that set and the results are revealed to the market with the scenarios.

This may, however, not discourage firms from simply reducing all exposures to a very low level to reduce the results whatever the scenario.

### **Portfolio revaluations**

Under this approach each reporting institution is given a set of scenarios on which to base their calculations of the change in value of their portfolio. As discussed above the scenarios should be common across institutions and should be fixed or at least the methodology should be fixed.

First thing to note is that the danger of fine-tuning exposures is greater under this approach. Provision to reporting institutions of fixed and detailed scenarios before they calculate (and hence report) the risk amounts will leave scope for them to fine tune their books. Although it seems impossible to tackle this point directly, we can still try to reduce this possible distortion by adopting multiple sets of scenarios and choosing randomly among the sets with regard to disclosure - ie, a number of scenarios would be calculated but only a sub-set would be released in the aggregate information. In this way, the incentive to manipulate behaviour could be weakened.

## **Further Issues**

### **Commitment**

One issue is therefore that of commitment by the central banks - to disclosure schemes, reporting requirements, the way regulation is implemented and so on. It is sometimes argued that if central banks do not make a commitment, the fear of their opportunistic behaviour would undermine the positive effects of enhanced information and resulting efficiency. Furthermore, discretionary changes in the procedures for the exercise may aggravate market uncertainty. It is not at all clear though that the central banks could make any commitment regarding the use to which they would put the data nor any regulatory action that might be triggered.

Unless the central banks' commitment is guaranteed, however, the distortion issues we have discussed so far remain significant. In particular, if the central banks chose to disclose the aggregate exposure in any way, the lack of commitment may even aggravate the market distortion. We therefore need to balance carefully the practical difficulty of making commitment and the possible distortionary consequences of it. Needless to say, commitment must be credible. It may therefore be helpful to investigate how we can design an optimal mechanism to make commitment credible, should we decide to proceed in this direction.

### **Timing of disclosure**

Time delays in collecting data, calculating risk measures and disseminating them seem inevitable. In highly competitive markets like financial markets, each participant can carry out a variety of transactions in varying volumes instantaneously and with little cost. Given this any delays in disseminating the results would reduce substantially the information content. Although this in turn could be helpful in encouraging reporting firms not to window dress.

More importantly, delayed dissemination gives rise to a risk that some market participants might erroneously interpret the results. Although improvements in the technology to process efficiently a huge amount of data could eventually mitigate this problem, delays are probably fundamental.

### **Global aggregation**

One issue regarding global aggregation is the consistency of data among institutions. Data collected from reporting institutions - either sensitivity data or calculated exposures to stress scenarios - must be on the same basis and comparable across institutions and countries. Either measure could be fundamentally affected by assumptions made by particular firms - for example, the volatilities used. Without putting these assumptions on the same basis or at least having a consistent methodology across countries, the data thus obtained could show a distorted picture between markets. In sum, a

consistent definition of sensitivity data and calculation of stress scenarios across countries could be indispensable if the exercise was to be meaningful.

Another issue though is that this common treatment across market could in itself be misleading. This is because a particular scenario could exactly highlight the risks being run in one market while completely missing the risks being run in another given the range of possible types of exposure - outright market exposure, basis risk, spread risk and so on.

### **Partial disclosure**

One issue is whether there is a case for disclosing the aggregate measures only to central banks - both participating and non-participating. If the benefit of enhanced transparency (to the market in general) is outweighed by market distortions then partial disclosure (only among the central banks) could be an alternative with a commitment that the information would not be released more widely and also a commitment to limit the use to which the data would be put.

It would also be important to encourage non-participating central banks to participate in the exercise. This is because information disclosure can confer positive externalities.