

■ Economic reasons for regulating the financial sector

Financial regulation must be based on a solid foundation of economic analysis. Two conditions must therefore be met for regulation to be justified: it must be possible to show some form of market failure, and the benefit of the regulation must exceed its cost to society. This article contains a general discussion of how market failures may justify regulation of various parts of the financial sector. In addition, attention is drawn to problems that arise when the benefit of a regulation is to be weighed against its cost.

A well-functioning society requires – as well as a physical infrastructure – a basic legal infrastructure consisting of rules and institutions to apply these rules.⁵⁵ This includes strong property rights and reliable systems for pledging property as collateral for loans. The emergence of the modern limited company, which looks essentially the same in all parts of the world, is another important factor behind economic growth. The analysis here assumes that such an infrastructure already exists and focuses on the need for further regulations. The main focus is on the regulation of financial companies, although much of the discussion could also apply to other sectors. While financial companies are to a great extent subject to specific regulations and supervision, they are not unique in this respect. The food industry is another example.

Two motives are usually emphasised as a basis for special regulation of financial companies; the need to protect the economy against systemic shock and the need for consumer protection. Protection against systemic risk entails regulations with the purpose of protecting the whole of the financial system against serious shocks, such as a bank crisis. Consumer protection entails regulations aimed at protecting the individual consumer against various types of exploitation.

However, regulation entails costs, both directly and indirectly. The benefit of the regulation must always be weighed against these costs. The need to examine the special financial regulations is reinforced by the fact that the existing regulations have been constructed over a long period of time and are the result of political compromise, not least in the form of EC directives. As both the regulations and our surrounding world change, there is cause for regular evaluation.

As financial regulations today often derive from various international agreements, Sweden has limited possibilities to choose a different focus for its regulations. However, Sweden can – with the objective that regulations should be based on economic analysis – influence the regulatory framework by expressing views on proposed regulations and legislation and by participating in the international work on formulating joint standards and recommendations. This is an important part of the Riksbank's work. For example, within the G10

⁵⁵ Economic research has emphasised the importance of legal infrastructure for economic progress. See, for instance, Levine (1999), "Law, Finance and Economic Growth", *Journal of Financial Intermediation*, 8, 8-35, Mayer and Sussman (2001) "The Assessment: Finance, Law and Growth", *Oxford Review of Economic Policy*, 17, 457-466, and Rajan and Zingales (2001), "Financial Systems, Industrial Structure and Growth", *Oxford Review of Economic Policy*, 17, 467-482.

work, the bank participates in the Basel Committee which formulates capital adequacy rules for banks.

The purpose of this article is to analyse the reasons for special regulation of the various parts of the financial sector from an economic perspective.⁵⁶ The aim is not to analyse specific regulations in detail. The discussion covers the financial sector in a broad sense, and refers to payment service providers, banks and other credit institutions, securities companies, deposit companies, exchanges and other financial markets, insurance companies, fund management companies, etc.

The article begins with a discussion of the general motives for regulation, followed by a general description of the justification for financial regulation based on the financial sector's three main functions. The major part of the article analyses the two traditional reasons for special financial regulations; protection against systemic crises and consumer protection. This is followed by a discussion of the various problems with special regulation. In conclusion, we present some implications for financial regulation in Sweden.

General reasons for regulation

The reasons for financial regulation do not differ fundamentally from the general reasons for regulation. It may therefore be useful to briefly review the economic theory of regulation before discussing the reasons for specific financial regulations.

A normal assumption is that economic efficiency can be attained when financial activities can be conducted in well functioning markets under good competitive conditions and with a minimum of public regulation and intervention.⁵⁷ Thus, free and unregulated markets can in most cases meet households' and companies' different interests. Sometimes, however, deficiencies arise whereby the market mechanisms do not work. Then, the most economically efficient result is not achieved; either too much or too little of a product or service will be produced compared to the optimal amount for society. Sometimes market agents themselves succeed in constructing ways of managing these market deficiencies; in other cases they are less successful. In the latter case, a real *market failure* ensues. There may then be justification for public intervention with some form of regulation.

⁵⁶ Traditionally, discussions of the motives behind financial regulation have often been based on other reasons than the purely economic ones used in this article. Regardless of the original reason, all regulations should be subjected to an economic analysis, as they almost always entail prioritising limited resources.

⁵⁷ Most of the basic textbooks in microeconomic theory contain a discussion of these issues; see, for instance, Hal Varian, *Intermediate Microeconomics*, W.W. Norton & Company, or Peter Bohm, *Social Efficiency: A Concise Introduction to Welfare Economics*, Macmillan Education.

MARKET FAILURES

A market failure occurs when those trading in the market do not have any incentive, quite often for entirely legitimate reasons, to ensure that prices and quantities correspond to those on a free market subject to competition. Economic theory identifies several different types of market failure.

Externalities are one type often mentioned. Negative externalities can arise, for instance, when an agent makes a decision that entails costs for others, without the agent taking this into account. A classic example is when a company that manufactures goods also emits air pollution that affects the environment. This air pollution entails a cost to society that the company's owners and management have not taken sufficient account of. Society may therefore need to intervene in order to regulate or price the emissions.

However, the existence of externalities does not always need to lead to major regulatory intervention. Sometimes it may suffice to more clearly specify property rights to avert more serious market failures. In the example of air pollution, a system with marketable emission rights could lead to a large part of the negative externalities being internalised. If the emissions are priced, the manufacturers have clear incentives to take them into account when making decisions. This is an example where general property rights do not include the right to pollute. When these rights are defined in law, it creates necessary conditions for a market that can solve the problem of the externality.

Public goods are another type of market failure. This refers to goods – or services – that can be consumed by several parties without any party being disadvantaged. When a product is consumed by those who do not pay for it, there is a problem that no individual has sufficient incentive to produce it. The market mechanism is insufficiently effective – the public sector may need to intervene to ensure the product is manufactured. Textbook examples of such public goods include national defence and street lights.

Information problems may also give rise to market failures. A market cannot function efficiently if buyers or sellers have incomplete information on alternative products. Problems also arise if the agents have different access to information, that is, if the information is asymmetrically distributed. Consumers often have a significant information disadvantage relative to those supplying the goods or services. This applies in particular where the goods or service are complex in nature.

In some contexts asymmetric information can lead to serious market failures. If the information asymmetries are sufficiently large, those with poorer information may prefer not participating to purchasing and risking a bad deal. If enough consumers choose to refrain from participation, the market base may completely disappear.⁵⁸

⁵⁸ See, for instance, Akerlof (1970), "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism" *Quarterly Journal of Economics*, 89, 488-500.

However, asymmetric information does not necessarily imply a market failure that requires public intervention. Many specialised services, such as banking, brokerage and consulting firms, are aimed at managing information asymmetries. Thus, it cannot be claimed that asymmetric information in itself always justifies regulation.

Imperfect competition is a market failure that can arise, for instance, when there is a small number of sellers in a market. If there is only a few, or even only one seller, the markets are called an oligopoly or a monopoly, respectively. The problem with imperfect competition is that, compared to a free market exposed to competition, prices are typically higher and the quantities produced lower.

Economies of scale exist if the production cost per unit declines as the number of products produced increases. Economies of scale can arise when there are large fixed costs, but the variable costs are relatively low. This often leads to imperfect competition as only a few companies can produce efficiently. If the economies of scale are substantial, the consequence may be that a natural monopoly arises.

However, economies of scale do not automatically lead to a disadvantage for customers. One example might be the joint infrastructure created by banks to manage payments to one another. This type of infrastructure often has substantial fixed costs, but small marginal costs. In addition to these economies of scale in production, there is a form of economy of scale for the consumer, known as network externalities. The classic example is the telephone network, where the benefit to the consumer clearly increases as the number of subscribers increases. However, network externalities are also common in the financial sector. The benefit to the customers typically increases if they can send payments to many banks. Therefore, it is important to balance the benefits of economies of scale against the resulting lack of competition.

From this point of view, the existence of a market failure is thus a necessary condition for regulation. However, it is not sufficient reason in itself. It is also necessary for the regulation's overall benefit to be greater than the cost that it will entail. This balance is often difficult to achieve, but without such an analysis the regulation risks doing more harm than good.

BALANCING BENEFITS AND COSTS

Apart from the fact that regulation often entails costs in the form of a public bureaucracy, it can also lead to substantial costs for the regulated companies in the form of information and reporting requirements, etc. These costs are often ultimately paid by the end-consumer.

However, the most serious economic costs of regulation are of a more subtle nature. Public intervention can have undesirable effects on the conditions for and behaviour of economic agents. It can, for instance, distort competition in the industry concerned or between

industries. The fact that some companies benefit indirectly and others are disadvantaged often contributes to inefficient allocation of resources in the economy, leading to poorer growth in the long term. It is therefore important to closely analyse both the advantages and the direct and indirect costs of each regulation.

A major problem is the difficulty in measuring the costs of a regulation. Its benefit to society may be even more difficult to estimate. Nor is it always possible to analyse a proposed regulation in isolation. The total effect of many different regulations may be undesirable even if each of the regulations appears to be motivated. Unfortunately, it is also often difficult to determine the total effects of a particular regulation until long after it has been introduced. However, these difficulties do not make the task less important.

Thus, for a regulation to be justified, a market failure has to be identified and the benefit of the regulation must exceed its cost to society.

Reasons for regulating the financial sector

On the basis of these general principles for efficient regulation, we now proceed to discuss the special motives for regulating the financial sector. However, first we present the main functions of the financial system.

THE MAIN TASKS OF THE FINANCIAL SECTOR

The financial sector offers three main types of service to households and companies; executing payments, allocating capital and managing risk.

Payments are of central importance in any economy. It is difficult to imagine any form of economic activity without payments. If the possibilities to execute safe and efficient payments were to deteriorate, the negative consequences for the economy as a whole risk being large.

In a modern economy, many payments – and moreover the largest and most important ones – are not made as direct transfers between payers and recipients, but as transfers between accounts with a payment intermediary, usually a bank. Payments using charge cards, credit cards and credit transfers are all made by the payment intermediary debiting the payer's account and crediting the recipient's account. It is only when this transfer between accounts has been made that the payment is finalised. If the end-users have different payment intermediaries/banks, there is a need for systems to make transfers between these, that is, a financial infrastructure for payments.

Allocation of capital is the second of the financial sector's main tasks in the economy. Many households wish to even out their consumption over a period of time. At the same time, companies need funding. It is therefore possible to attain major efficiency gains

in the economy by linking up those who wish to save money, i.e. not immediately consume their income, with those who need resources for various types of investment or for consumption. The market price of the loan, the interest rate, will direct capital to the most profitable investments since they will be able to support the highest risk-adjusted interest rate. Thus, ideally, capital is allocated to the economically most productive investments, which leads to higher economic growth.

Traditionally, banks have played a central role in allocating and transferring capital by receiving deposits and granting loans. However, there are alternatives. Mortgage companies and other credit institutions currently account for a significant share of loans. A large part of saving is in mutual funds. The securities markets are also important for channelling capital to those who can make best use of it. Banks and other intermediaries often finance themselves or invest their resources in the securities markets. This means that the securities markets become central to different financial agents' possibilities to supply a broad range of financial services to households and companies, even if the latter do not operate directly in these markets.

Risk management is the third main task of the financial sector. Insurance companies are the clearest example of institutions supplying risk management services. The banks also manage many risks. One example is that the banks lend to many different companies and households and thereby reduce the risks for depositors. However, both insurance companies and banks would find it difficult to offer a comprehensive range of risk management services if they were not in their turn able to dispose of their risks in the financial markets. For example, the derivative markets have made it possible to relatively easily distinguish different risks and to manage them separately. This has enabled substantial efficiency gains to be made, primarily in professional agents' risk management.

MARKET FAILURES IN THE FINANCIAL SECTOR

The discussion above indicates the importance to the economy that the financial sector can carry out its main tasks efficiently and securely. However, this is not in itself sufficient motivation for regulation; a clear market failure should also be identified. The market failures relevant to the financial sector are primarily externalities, information problems and economies of scale.

Externalities can arise in the financial sector, for instance, due to contagion risks. If one bank suffers financial problems this usually has an immediate effect on many other banks. However, in taking decisions that affect a bank's risks, it often lacks any incentive to take into account the economic costs these contagion risks entail. The existence of these negative externalities creates a systemic risk motive for special regulation of the financial sector.

Information problems are common with regard to financial services, and often a result of information being asymmetrically

distributed, for instance, between sellers and buyers. The services can be complicated and it is natural that the sellers have significantly better information than the buyers, who are often individual consumers. Although the problems resulting from asymmetric information are not unique to financial services, these problems are often greater for these services than for other goods and services. There is thus a consumer protection motive for special regulation of financial services.

Economies of scale are also common in a number of financial services. As a consequence one or a few manufacturers can produce these services at a lower unit cost than if there had been many different producers. Another consequence is that competition is frequently limited, in the same way as for natural monopolies. The existence of economies of scale can reinforce the need for regulation from both a systemic risk and consumer protection perspective.

The following two sections contain a more detailed discussion of the motives behind special regulation of the financial sector, based on the traditional division into systemic risks and consumer protection.

The need to protect the financial sector against systemic risks

The externalities in the financial sector are closely linked to the existence of **systemic risk**. Systemic risk can be defined as the risk that a disturbance in one part of the financial system will develop into a crisis that spreads throughout the system and threatens one of the system's fundamental functions, for instance in that many agents, institutions or systems will face problems so serious that their operations will be endangered or substantial asset values will be jeopardised.⁵⁹ There is a negative externality since agents do not take into account all of the costs that would arise if one or more of the financial sector's fundamental functions were eliminated. In other words, the individual agents' incentives to manage systemic risk are lower than is optimal for society. An important motive for regulation is therefore to avoid or reduce systemic risks.

Although the probability *a priori* of a systemic crisis is small, the economic effects can be substantial. It is often difficult to estimate the costs of a financial crisis. A survey carried out by the Bank of England estimates the accumulated production loss as a result of a financial crisis to 15–20 per cent of GDP.⁶⁰ This indicates that the economic value of stability in the financial system is considerable, which strengthens the argument for regulation to avoid systemic crises.

The importance of an individual system or institution from a

⁵⁹ There are many references to systemic risks. An overview can be found in Goodhart and Illing (2002) *Financial Crisis, Contagion and the Lender of Last Resort: A Book of Readings*, London, Oxford University Press. Empirical research into systemic risks includes Gropp and Vesala (2004), "Bank Contagion in Europe", mimeo ECB and Bartram, Brown and Hund (2005), "Estimating Systemic Risk in the International Financial System", working paper Kenan-Flagler Business School, University of North Carolina at Chapel Hill.

⁶⁰ Hoggarth, Reis & Saporta (2001), "Costs of Banking System Instability: Some Empirical Evidence", Working paper 144, Bank of England.

systemic risk perspective depends on what alternatives the user has within a reasonable time horizon. If there are realistic alternatives, the economic interest of protecting a specific system or institution is reduced.⁶¹ As the available alternatives may vary over time, depending on technological advances and market conditions, it is important to continuously monitor which institutions and systems are vital for supplying fundamental services.⁶²

Systemic risks are very important to the financial sector, for two reasons. The first is that some functions in the financial system are particularly sensitive to disturbances. The second is that there are considerable contagion risks in some financial activities. Disturbances may easily spread throughout the system and cause a systemic crisis. Contagion effects therefore risk causing substantial costs and having prolonged repercussions throughout the economy.

However, systemic crises can arise without chain effects, especially if the market is so concentrated that it is dependent on the functioning of one or a few institutions or systems. If one such system suffers problems, it may mean that one of the financial sector's economically important functions cannot be maintained.

Thus, a systemic crisis could entail an entirely disappearing supply of certain goods and services. The market will collapse, despite the services still being greatly in demand. This instability should not be confused with natural and necessary structural changes, which are often due to a change in demand or production prospects. If, for instance, a country's automobile industry were driven out of business by foreign companies, it would mean that the consumers had chosen other alternatives. However, this does not mean that there will be a shortage of transport or that the transport system as a whole will be put at risk. These structural changes are normally due to changes in preference or in relative costs and not to the market collapsing and being unable to meet demand. Systemic protection is thus not a protection against natural structural changes.

The need for regulation to reduce the risk of systemic problems differs considerably from one financial sub-market to another. Different market failures may also require different solutions.⁶³

THE MARKET FOR PAYMENT SYSTEMS, CLEARING AND SETTLEMENT

In **payment systems** there are three main sources of systemic risk; contagion risks, economies of scale and network externalities.

The contagion risks in payment systems are examples of the chain effects that could arise when an agent in a financial transaction

⁶¹ Today's financial institutions are often so large and so complicated that they have several functions in the economy. If an institution carries out a systemically important function it does not always mean that the entire institution is systemically important.

⁶² See, for instance, Financial Stability Report 2003:1 "Can a bank failure threaten the payment system?", pp. 75-92 and Andersson, Guibourg and Segendorff (2001) "The Riksbank's oversight of the financial infrastructure" *Sveriges Riksbank Economic Review* 2001:3, pp. 5-19.

⁶³ An analysis based on these principles has been carried out earlier, concerning the motives for regulation of banks, see for instance the Banking Law Committee's report, "Regulation and supervision of banks and credit market undertakings", (SOU1998:160).

is unable or unwilling to pay. If one agent does not pay, many other agents may become unable to pay. Payment problems can thus spread to several agents in the economy. As it is not reasonable to assume that the first agent to default on a payment will take account of all consequences for all other affected agents – if an agent is suffering payment problems he may have no other choice – there is a market failure in the form of negative externalities. Contagion risks therefore constitute a potential threat which could put the entire payment system out of action.

Another characteristic of payment systems is that economies of scale are often substantial. For this reason, large payment systems can often offer payment services at lower prices than small systems. There are therefore considerable entry barriers to payment systems as well as significant concentration tendencies. Moreover, payment systems are usually characterised by substantial network externalities.⁶⁴ A participant would normally benefit from more users joining a payment system, as it increases the opportunities for successfully sending and receiving a payment.

The concentration tendencies mean that payment systems often have the quality of natural monopolies. Most countries only have one single payment system for each type of payment. In Sweden there is, for instance, the Riksbank's RIX system for large-value interbank payments and Bankgirocentralen BGC's system for less urgent payments in smaller amounts. One consequence is that the possibilities to make payments become critically dependent on the stability of the individual payment system. However, another consequence is that the fixed costs can be distributed among a larger number of users and that customers can more easily execute payments to other customers. Also, there is a risk that the concentration will lead to monopoly pricing and that the motives for change and development decline.

The tendency towards concentration means that there may be reasons for special regulation and supervision of payment systems to reduce the systemic risks. However, the problem of systemic risks may require regulations that unintentionally reinforce the concentration of the market even further, thus justifying special monitoring of competition issues in this field. In practice, regulators therefore have to strike a difficult balance between reducing the risk of systemic crises and maintaining competition and pressure for structural change.

Clearing and settlement of securities transactions is subject to problems similar to those in the payment systems.⁶⁵ Firstly, the contagion risks are similar. As clearing and settlement in most markets takes several days to perform, significant exposures are created before settlement is complete. If the seller of an asset cannot supply it, there may be severe repercussions for other traders. Furthermore, clearing

64 For an analysis of these network externalities, see for instance Guibourg (2001), "Interoperability and Network Externalities in Electronic Payments", Working Paper 126, Sveriges riksbank.

65 Clearing refers to the compilation of the commitments that follow from trading, that is, how much the buyer shall pay the seller and which and how many securities the seller shall supply to the buyer. Settlement refers to the actual transfer of the liquid funds to the seller and the securities to the buyer.

and settlement of securities transactions is usually closely linked to payment systems, where the flows largely originate from securities trading. Problems in clearing and settlement of securities therefore risk spreading into the payment systems. This provides justification for regulation and supervision of the clearing and settlement systems. The regulation should be aimed at increasing the probability that agents can supply the right asset in time and at minimising the consequences of any delivery problems.

Like the payment systems, clearing and settlement systems are characterised by substantial economies of scale as the costs can be spread over many users, although at the same time the risks increase in the event of a failure. The concentration tendencies are liable to hamper a dynamic development. The reasons for regulation are thus the same as for the payments system.

THE BANK MARKET

If the payment systems are to function, it is also important that the payment intermediaries can carry out their tasks. The banks play a central role in most modern economies, as managers of means of payment and as payment intermediaries. Means of payment here refers to funds intended for making payments in the relatively near future and which are therefore invested in a way that makes them quickly available at a low cost.

Normally a bank's assets, in the form of loans to companies and households, are illiquid, while their liabilities, i.e. loans from the securities markets and deposits from companies and households, are liquid. Depositors can usually withdraw funds at short notice, for instance, to make payments. This is in fact one of the purposes of depositing funds. The loans from the securities markets are also largely of short duration, that is to say, liquid. In contrast to this, the bank's lending to companies and households is not usually reclaimable at short notice and cannot be sold quickly without substantial discounts. One of the banks' main tasks is precisely to make this conversion between liquid deposits and illiquid loans.

However, this imbalance in liquidity entails a risk for the banks. If the financing through the securities markets were to disappear entirely or if all depositors wanted to withdraw their deposited funds at the same time, the bank would be unable to meet these demands. As the bank's financiers realise this, a bank facing financial problems will suffer a bank run, where all depositors hurry to withdraw their funds as quickly as possible and other lenders withdraw their financing. It may even suffice that the bank is suspected of having problems to trigger a bank run. When the bank's liquid funds come to an end the bank will be forced to close. The individual market agent or depositor does not typically take the consequences of its actions for the bank's finances into account. Therefore, there is a negative externality, i.e. a market failure.

The problems are aggravated by the contagion risks that exist. If a bank suffers payment problems, for instance because of a bank

run, the liquidity problems can easily spread to other banks. This contagion can occur in different ways. Firstly, there can be a direct contagion, through the exposures the banks have to one another in the payment systems and in connection with foreign exchange and securities trading. Severe chain effects can arise if the customers of a bank suffering problems have their means of payment tied up in the bank. This makes payments to other households and companies more difficult, leading to liquidity problems, which can in turn cause loan losses and payment problems for these customers' banks.

Another problem is that the banks are often exposed to the same types of risk, i.e. increasing the likelihood of a macro economic shock hitting more than one bank. Fears of this can make the banks' financiers overly cautious in renewing their loans, even where there is limited correlation between the banks. Thus, problems can both spread between banks as an indirect effect, through expectations that other banks may suffer similar problems to the one first affected, and via more well-founded suspicions of the banks' exposures to one another.

The banks' significance as payment intermediaries, combined with their inherent fragility provides justification for regulation. The problem is that the entire market for deposits – and thereby also for lending – risks disappearing even if demand for these services remains unchanged.

If the banking system were knocked out, it could also lead to a severe and rapid credit crunch. This entails a risk of substantial costs for society. The time aspect is important here. Companies that are dependent on overdrafts could face serious consequences in a bank crisis. However, any serious repercussions from a bank crisis would be less immediate for the capital allocation than for the payment system.

The problems are fewer with regard to the credit function than to the payment services function because, given a little time, the customers can actually change bank. The risk that the service would disappear completely is thus smaller for capital allocation than for the payment systems. At the same time, credit providers often have a long relationship with their borrowers and therefore have private information about the creditor. It is difficult to transfer this information, making it hard and time-consuming for an alternative financier to take over any credits from a failing bank. Another problem is that the capital adequacy rules can constitute a restriction on how rapidly other credit institutions may expand their loan portfolios. This means that the significance of systemic risks for the supply and allocation of capital should also be taken into account.

THE MARKETS FOR FINANCIAL INSTRUMENTS

Trading in financial instruments – securities, foreign currencies and derivatives – requires liquid markets. However, in some cases a market failure may arise, where market liquidity, and thereby the possibilities for financial trading, disappears.

There are network externalities in market liquidity. As more traders gain access to a particular market, the benefit for all participants in the market increases. Agents who trade – and thereby supply the market with liquidity – will not take into account the benefit that the increased liquidity has for other market agents. In other words, there are positive externalities in liquidity. One consequence of this is that order flow on a market will attract further order flows; liquidity attracts liquidity. However, there is also a downside. If liquidity for some reason declines in one part of the market, there is a risk that liquidity in a negative spiral rapidly disappears from the market as a whole. There is thus considerable risk that market liquidity will dry up if a financial crisis arises.

Normally, there are always agents willing to trade. However, when uncertainty in the markets increases it is usually necessary to offer a favourable price to attract a counterparty. Usually, liquidity is a question of finding the right price. However, one cannot rule out the possibility that the uncertainty will escalate so that no one wants to trade and the market will disappear entirely during a brief period, that is, a liquidity black hole will arise.⁶⁶ The result is that market agents cannot change their financial positions. Liquidity therefore risks being at its lowest just when it is most needed. In historical terms, we have experienced such liquidity black holes on some occasions, for instance during the stock market crash of 1987, the case of LTCM in September 1998 and in connection with the terrorist attacks on 11 September 2001. In practice it is often difficult to determine when a liquidity black hole has arisen. On the occasions mentioned, the Federal Reserve's assessment was that there was at least an imminent risk and they therefore intervened.

Market liquidity problems usually arise as a result of rapid price falls in financial instruments caused by the arrival of new information or by investors' changed perception of an asset's value.

Rational investors can protect themselves against a price fall by using orders with stop-loss functions. These are automatically triggered when a sufficiently large price fall occurs. However, if there are enough investors using similar features, this can lead to a very rapid negative spiral in asset prices and a rapid drainage of liquidity. There is thus a negative externality, as the individual investor has no incentive to take into account and internalise the economic cost of his actions. The acute problem is not that the price is adjusted to a new – possibly more realistic – level, but that the adjustment is so quick that liquidity disappears and market functioning can be seriously damaged.

This type of downward spiral in the securities markets can be reinforced by the behaviour of the large investors, such as life insurance companies and mutual funds. When large unforeseen

⁶⁶ See Avinash Persaud *Liquidity Black Holes: Understanding, Quantifying and Managing Financial Liquidity*, Risk Books, Dec 2003 or Morris and Shin (2004) "Liquidity Black Holes", *Review of Finance* 8: 1–18.

falls in asset prices of various financial instruments occur insurance companies may be forced to make sell-offs in order to meet the solvency requirement contained in the current regulations. These sell offs could lead to further falls in financial asset prices thus triggering or reinforcing a negative spiral. Many analysts claim that the stock market fall during the spring and summer of 2003 was partly an effect of regulations forcing life insurance companies into sell-offs.

These examples of problems with market liquidity indicate the difficulty of influencing developments by public intervention. Liquidity cannot be produced through regulation. In drafting regulation, however, it is important that the public intervention does not reduce the market's capacity to create and maintain liquidity. In addition, the examples show that there may be a need for a central bank to step in and supply liquidity in certain situations.

Above we have discussed the banks' significance as payment intermediaries and their increased dependence on the financial markets for their financing. The increased dependence on financial markets also applies to the banks' risk management, partly because of their dynamic hedging strategies.⁶⁷ Problems in the financial markets can therefore make both funding and risk management in the banking system more difficult and more expensive. If a liquidity black hole arises, it could rapidly affect the banks and ultimately lead to major problems in the payment systems.

However, the probability of a liquidity black hole arising varies from one market to another. For instance, there is a greater chance of finding willing counterparties in the markets most important to the banks' risk management. Therefore, in these markets, the liquidity problems are more likely to result in more unfavourable prices for the agents needing to trade. However systemic problems cannot be entirely ruled out.

THE INSURANCE MARKET

As mentioned above, the behaviour of the insurance companies can reinforce price changes on different financial markets and thereby contribute to liquidity problems in the worst case. It is more difficult to find market failures in the insurance companies' operations that give rise to systemic problems in the same way as for banks and payment systems. The insurance market lacks the network externalities and concentration tendencies that distinguish the market for payment systems. The liquidity and contagion risks that characterise the bank market are also limited in the insurance market.

Although the risks in, for instance, the property and liability insurance industry can be correlated in connection with natural disasters, these companies are usually sufficiently diversified and reinsured on the international markets to be able to manage fairly large damages that affect an entire industry. Even in the life insurance

⁶⁷ A dynamic hedging strategy entails risk management by means of the holder adjusting his position daily, or almost daily, which therefore requires good access to liquid markets for financial instruments.

industry, the risk of systemic crises is probably limited. If an individual life insurance company suffers financial problems, it will hardly affect the other companies' financial situation. Of course there may be a correlation in the risks to which the companies are exposed, for instance, market risks and changes in the policyholders' expected average length of life.

However, the absence of extreme concentration and liquidity risk means that crises affecting insurance companies often take a slower course. Thus, problems in the life insurance companies may have consequences for the real economy in the long term, but will hardly create a systemic crisis.

The need for consumer protection in the financial sector

The need for consumer protection in various markets is an important and commonly recurring motive for regulation. This is reflected in particular in the general consumer protection laws. It also applies to financial services, and a substantial part of the regulations in the financial sector is justified on the basis of various consumer protection aspects.

Consumer protection is important for several reasons. Firstly, many financial services are essential commodities – for instance, individual households and companies are dependent on being able to receive and make payments in their day-to-day life. Secondly, financial services, such as bank savings, pension savings policies and mortgages, often entail large values for the individual customer. Many people probably have a considerable percentage of their lifetime income in pension savings when they retire. If an individual's entire pension capital were to disappear, there would be severe economic effects for that person. If many people were affected, it could also lead to social and, ultimately, political problems.

Furthermore, there are frequently information problems in financial services. In particular, the information may be asymmetrically distributed between buyer and seller. Consumers of financial services may find themselves at a considerable information disadvantage towards the sellers of these products and services. The information problem arises in that many financial services are also relatively complex and have contract terms and pricing that are difficult to understand. This complexity makes it difficult for people who are not familiar with this sector to make well-founded decisions. The time aspect reinforces the information problem. Many financial services, for instance, pension savings, have a long time horizon where the actual purpose of the services is that they will be consumed in the distant future. This makes it difficult for the consumers to assess the quality of the services and the credibility of the different suppliers on the basis of their own experience.

It is precisely the *combination* of these properties – on the one hand the individual consumer's dependence and vulnerability and on the other hand the information problems – that can motivate special regulation of financial services.

THE SCOPE AND FORMULATION OF CONSUMER PROTECTION

The seriousness of the information problems for consumers is largely related to how the market functions. In an efficient market with limited information problems serious sellers of financial services with long-term aims have strong incentives to observe customers' best interests. Otherwise the customers will turn to their competitors. However, if the asymmetric information problems are substantial and if the market for some reason cannot manage to solve these problems, individual customers will probably suffer. In extreme cases, an existing market may disappear, even though it performs an important function in society.

Also, it is often difficult to define who needs to be protected and against what. It is not always clear who is the consumer. The need for consumer protection also varies between the different types of consumer, depending on knowledge, resources and preferences. Moreover, the needs may vary for different products. Most people can probably accept the risk of losing money in equity trading, but are less prepared to lose deposits in the bankruptcy of a bank.

When two equal parties enter into an agreement on financial services the need for protection is lower. In addition, it is scarcely reasonable to protect even the weakest consumer against all types of risk. Banning or making it difficult for an individual to bear different risks or protecting the customer against all unfavourable outcomes is hardly desirable. At the same time, it may be justified for households to have reasonable protection both for their savings and their access to a number of well functioning financial services.

The appropriate form for the consumer protection also depends on other aspects, such as the purpose of the protection and the financial services concerned. If the consumer protection regulations are primarily aimed at protecting the financially weakest consumers, it may be efficient to focus the regulations on simpler services such as payments, bank loans and deposits. At the same time, information problems are more likely in complicated services such as index-linked bonds. Thus, perhaps consumer protection should focus on this type of services.⁶⁸

One example of a regulation aimed at improving the information to consumers is the Swedish legislation on financial advice. By requiring documentation on the exchange of information when providing financial advice, the service is made more expensive. Consequently, the increased costs could in practice lead to fewer consumers receiving advice. In drafting regulations it is therefore

⁶⁸ There are similarities with other areas, such as health care. Buying simple painkillers is usually fairly easy, while more complicated medications require stronger protection, for instance, in the form of prescriptions from registered doctors.

important to take into account this type of practical consequences when assessing the benefit and costs of the laws.

From a consumer protection perspective, perhaps the most difficult problems arise in the fund management and life insurance markets, where the time aspect is particularly important. Here, the market mechanism is not always an efficient instrument of control, at least from the individual consumer's point of view since the result of the investments is clear only far into the future. The lock-in effects resulting from taxes and charges also hamper changes of saving strategies and suppliers.

A complicating factor is that it is often difficult for the customer to monitor and assess the performance of the companies supplying financial services. If it were possible to write contracts that completely regulated all possible situations between buyers and sellers, the problem would be solved. However, in practice it is impossible to create such complete contracts.

These problems are aggravated by serious conflicts of interest. The conflicts of interest exist between the financial company and the customer and also potentially between different customers of the financial company. The latter type of conflict of interest is particularly evident when financial companies are active in many different fields. Being active in different fields often has advantages from a marketing and efficiency point of view, since the economies of scale can be substantial. At the same time it can give rise to temptations to exploit the customers' information disadvantage or to favour one group of more profitable customers over another group. A natural first step in managing conflicts of interest is to ensure that the customers are informed and aware of them.

Balancing the benefits and costs of regulations

To conclude so far, various types of market failure can motivate financial regulation from both a systemic protection perspective and a consumer protection perspective. However, the regulation may also lead to both direct and more indirect costs as well as a number of other problems.

A general problem in regulation is that it is not sufficient to consider only the deficiencies of the market. If the market cannot solve the problem, it is not certain that a better solution can be found by regulation. In other words, it is possible that both the market and the regulator can fail in this task. A further complication is that it takes time to change public regulations. Therefore, such regulations may obstruct development in an industry where the market conditions are changing.

Experiences also show that regulations, even if they are based on sound motives, can create problems, which in turn have to be

managed by further regulations. It is therefore important, when assessing the costs and benefit of these regulations, to take into account any resulting regulations that may become necessary. As regulations often emerge gradually, there is a risk that the cost will be calculated marginally and not take the entire picture into account. One example is the insurance industry, where regulations to protect the consumer have been gradually extended, and where each individual regulation may appear motivated, but where the total effect of the regulations has resulted in limited competition and efficiency and also created some conflicts of interest.

STABILITY AND EFFICIENCY

One conflict can arise between stability and efficiency in the financial system. It is, for instance, possible to construct almost completely safe payment systems, but they would be expensive and the market agents would therefore probably choose other solutions. The deregulation of the financial markets in recent decades has been a way of increasing the efficiency of the allocation of capital, the management of risk and the execution of payments, partly at the price of a less stable financial system. Many countries with strictly-regulated financial systems pay a price in the form of inefficiency and limited growth. There is also a potential conflict between stability and efficiency. At the same time, a systemic crisis could entail major efficiency losses. A satisfactory degree of stability is thus a necessary condition for economic efficiency. In practice, therefore, finding a reasonable balance between these objectives in regulations is a very delicate task.

COMPETITION

As discussed earlier, economies of scale and network externalities can give rise to monopolies, for instance in systems for clearing and settlement of securities transactions. Also, market failures can motivate regulations to reduce the risk of clearing and settlement systems collapsing. The problem is that systemic risk regulation in this case may further reinforce the concentration tendencies and thereby further obstruct competition. Thus, to achieve well-designed regulation of clearing and settlement systems, the competition authorities also need to monitor the companies offering these systems.

One problem is that regulation is often based on the existing corporate structure.⁶⁹ As a result, incumbents typically benefit at the cost of new entrants. Stock markets in many countries have for instance frequently been national monopolies. With an increasingly international investment environment and with the introduction of electronic trading, the need for a national monopoly has largely

⁶⁹ An exception is the Banking Law Committee (SOU 1998:160), which tried to make a functional analysis, leading to a proposal that certain parts of the deposit market should be deregulated. However, it may be difficult to completely avoid an institutional approach since in the end only companies and not functions can be regulated.

disappeared. In many countries the traditional mutual ownership of these companies has hardly facilitated structural changes in the exchange business. Another example is the regulation of the pension insurance market. Here the collective regulatory framework entails considerable lock-in effects. Therefore, in practice, new companies can only compete for new investment flows. The existing stock of pension insurance funds is in practice only subject to limited competition.

The endeavour to maintain a stable financial system can easily become an excuse to preserve a static system. Changes are necessary and the most efficient producers of financial services should have the opportunity to compete and push out less efficient producers. Consequently, financial companies must also be allowed to go into liquidation. The important thing is that the liquidation can be performed in an orderly manner. The primary purpose is to ensure that customers have access to the main services provided by the financial sector, not to protect the individual financial companies.

DYNAMIC EFFICIENCY

Another potential conflict may arise in the intersection between static efficiency and efficiency in a more long-term, dynamic sense. Economically efficient pricing means that prices are set at marginal costs. However, a consequence of applying such pricing in industries where there are large fixed costs and economies of scale is that these producers may experience difficulty in covering their fixed costs. Marginal pricing would also hamper the financing of the large investments in the financial infrastructure that are needed at regular intervals in order to be able to continue offering certain financial services efficiently.

There is thus a conflict between on the one hand attaining static efficiency using marginal pricing and on the other hand providing scope for change and pressure for structural change, i.e. achieving a more dynamic efficiency. As we observed earlier, this type of conflict is not unique to the financial infrastructure companies. However, given that the regulations motivated by stability or consumer protection reasons can reinforce concentration tendencies and obstruct competing operations, the problem may be amplified for this type of financial company.

We have also indicated other sources of indirect regulation costs, such as moral hazard problems. These can be substantial in the financial system. With, for instance, a public protection against systemic risks the banks may actually increase their risk-taking.⁷⁰ The reason is that the bank's shareholders receive a higher yield if a high-risk project is successful, while the public safety net may be used if the project fails and the bank faces problems. With well-functioning markets and under normal circumstances the problem is

⁷⁰ There is also a type of moral hazard problem between company management and owners, often known as principal agent problems. These differences in incentive will probably increase in a crisis. It would then probably be in the management's interest to take extra risks. If they were successful they could keep their jobs. If not, it is the shareholders' money that has been invested.

probably limited. However, if a bank comes dangerously close to a financial crisis, increased risk-taking may be tempting unless the moral hazard problems are managed in some way. It is therefore important that regulations for systemic reasons try to limit these moral hazard problems.

SPECIAL CONSUMER PROTECTION ASPECTS

On the question of consumer protection, balancing the benefits and costs of the regulation may be particularly difficult. An excessively weak protection may induce consumers to avoid complicated, but potentially very valuable services because the information problems are too large thus leading to efficiency losses in the economy.

On the other hand, as noted previously, overly strict consumer protection could increase the cost of financial services and thereby reduce the supply or limit the number of customers to whom the supply is directed. In extreme cases this could lead to the service disappearing entirely from the market, resulting in a probable efficiency loss. Excessive consumer protection could also reduce the critical evaluation by consumers of the companies producing financial services. It could also reduce the consumers' incentives to question and check the producers' financial risks. In other words, a moral hazard problem arises once again, with negative consequences for both the efficiency and the stability of the economy.

In terms of consumer protection, there is an important boundary between professional agents and non-professional retail customers. The non-professional customers need not comprise only households – that is, consumers in the traditional sense – this category can also include companies.⁷¹ In markets with only professional agents it is difficult to see any significant motive for consumer protection, particularly as the information problems are less pronounced, but also because these agents primarily act as equal counterparties, particularly in the securities markets.

However, regulations aimed at protecting retail consumers but which disturb the functioning of the professional markets can negatively affect the professional agents' supply of financial services in the retail segment. Thus, applying consumer protection regulation to professional markets may be counterproductive without satisfying any essential consumer protection needs. A securities company is usually subject to different rules depending on whether it is doing business with a retail customer or with other securities companies in the wholesale market. If, for instance, the rules a securities broker follows when executing a retail customer's order were applied in all parts to his transactions with other securities brokers, it could become unprofitable for him to continue doing business.⁷² The supply of

71 Evidently, large companies such as Volvo and Ericsson can be retail customers with regard to many financial services. Even the large financial companies can in some cases find themselves in a retail customer situation when they order fire insurance or some other financial service that they do not supply in their own professional capacity.

72 EC Directive 2004/39/EC on markets in financial instruments, contains a number of requirements that can be interpreted this way. The exact interpretation and execution on this directive is not clear, however.

financial services to retail customers could then decline. If the supply of this service disappears, the loss for the consumer would probably be much greater than the possible gain from extended investor protection.

An interesting observation is that even if a fundamental motive behind the consumer protection is based on asymmetric information, only a limited part of the regulations are actually aimed at mitigating these information problems. A large part, for instance various forms of solvency rules, is aimed at managing the symptoms rather than the basic problem. This may be effective in some cases, but it does not make it easier to analyse whether the total benefit of the regulations exceeds the costs.

INTERNATIONAL HARMONISATION OF REGULATIONS

The development towards increasingly integrated financial markets creates a dynamic trend towards harmonisation of rules between different countries. This trend is clear, for instance, in banking, securities trading and accounting. Harmonisation is important, as it probably leads to lower entry barriers and a more efficient allocation of capital and risks globally. This is also the expressed purpose behind most harmonisation.

However there are risks of a more dynamic nature. Harmonisation does not necessarily lead to more efficient rules, as they are often the result of compromises, where the most efficient solution is not always the given outcome. Instead, the regulatory structure may become overly complicated, as all negotiating parties want their special issues included.

Although harmonisation is essentially a positive development, it can have negative consequences. If competition is good for the development of most other operations, it should also be good to some degree for public regulation. When different countries use different strategies for regulation, there is also opportunity to learn from others' mistakes and successes in regulation. Harmonisation leading to a more uniform regulatory structure will reduce these opportunities.

Some implications for financial regulation in Sweden

Although the purpose of this article is not to assess any specific regulation – existing or proposed – we would like to point out some areas where the regulation may not meet the criteria we have set.

The first example is the public management of banks in distress. We have concluded that financial crises can be costly to society and that there is scope for regulation to reduce the risk of crises. At the same time, the banks are fragile and regulation can never be fully inclusive. It is therefore important that clear rules and laws are introduced with regard to the public management of banks in distress. Otherwise there is a clear risk of moral hazard. In countries such as

Sweden, where the banking sector fairly recently has been saved from collapse, it is particularly important to draft regulations to manage this type of potential problem. There is a Swedish proposal for an act on public administration of banks in distress and it is important that the central parts of this are actually implemented and that the regulation is extended to also cover insurance companies.⁷³

The second example comes from the life insurance sector. Our article draws the conclusion that it is difficult to see serious systemic risks in this sector, but that there are clear consumer protection motives for regulating insurance companies. This regulation is already far-reaching. Many of the regulations may appear justified in themselves, but altogether they create lock-in effects, entry barriers and other inefficiencies. It is therefore doubtful whether the sum total of all regulations really produces the desired result. The problem is reinforced by the fact that the regulations tend to distort the entire savings market.

A third example concerns the entry barriers for securities companies. In recent years there have been a number of EC directives aimed at the securities markets, such as the Prospectus Directive, the Market Abuse Directive, the UCITS Directive and the Directive on Markets in Financial Instruments. Although these directives can be justified in themselves, the sum total of all detailed regulations entails a significant burden for the securities companies. There is a risk that the total regulatory burden will discourage new companies from establishing in the securities market and that the market positions of the largest, best established companies will be confirmed.

Concluding comments

An overall economic aim is that economic resources should be allocated efficiently, that is, steered to the projects and investments that are most productive. In this article we have discussed a way of analysing the regulatory structure in the financial sectors.

An important conclusion is that regulation of financial operations should be based on both an analysis of market failures and an evaluation of the benefits and costs of the regulation. Even if this type of analysis of an individual regulation is difficult to execute, it is none the less important. There is otherwise a risk of introducing regulations that counteract their purpose or that impair economic efficiency and thereby affect all citizens in the form of poorer welfare.

Another conclusion is that a financial system which is instable and where consumers are regularly enticed into unfavourable agreements is not fulfilling its fundamental tasks – to execute payments, to allocate capital and to manage and redistribute risk – in an economically efficient manner. There are therefore relevant economic motives for special regulation of the financial sector. At the same time,

73 See SOU 2000:66

the systemic risks only exist in certain parts of the financial sector. The need for consumer protection also varies between different types of customers and between the different financial sub-markets.

The Riksbank has the task of promoting a safe and efficient payment system. A reasonable interpretation of this task is that the Riksbank should primarily try to avoid systemic crises that impair access to the three fundamental functions of the financial system. Rules that affect the stability and efficiency of the financial system are therefore top priority for the Riksbank. An efficient financial sector also presupposes well-balanced consumer protection. However, in Sweden the responsibility for consumer protection in the financial sector lies primarily with Finansinspektionen, the Swedish Financial Supervisory Authority, and the Swedish Consumer Agency. In many cases, competition issues are also special to the financial sector. The Swedish Competition Authority, together with the other institutions concerned, has an important role to play.

Although systemic risk and consumer protection entail different motives in principle, in practice there are a number of overlaps. In the end, many regulations can be justified from both a systemic protection and a consumer protection perspective. Systemic risk regulations aim to ensure access to fundamental financial services, such as payment systems. Thus, these regulations are also very relevant from a consumer protection aspect. Correspondingly, an efficient financial system ultimately requires that consumers have sufficient protection – and thus confidence – to dare to utilise the financial services offered by the system.