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*The Economics and Regulation of Financial Privacy –
A Comparative Analysis of the United States and Europe*

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Abstract

This paper analyzes the economics and regulation of financial privacy. Financial intermediaries produce and process vast amounts of personal information, therefore, the primary focus is on information sharing arrangements among market participants in consumer credit markets. The examination serves two interrelated purposes. First, it reviews canonical credit market models and discusses the implications for privacy formalization. Second, it provides a comparative analysis of information sharing arrangements and privacy regulation in the United States and in Europe. The intention is to answer the question of whether or not financial privacy is more strictly regulated in Europe than in the United States. In comparing the property rights structures established by both regulatory regimes we find differences in the initial assignment of rights, these differences, however, vanish when bank lending practices are taken into account.

This is a *Working Paper* and the author welcomes any comments on the present text.

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Table of Contents

I. Introduction	4
II. Information Economics Models	8
2.1 Information Economics in Credit Market Models	8
2.2 Implications for the Formalization of Privacy	14
III. Analysis of Privacy Regulation in the U.S. and the EU	15
3.1 Financial Privacy Regulation and Information Sharing in the U.S.	15
3.1.1 Information Sharing Arrangements in U.S. Credit Markets	15
3.1.2 Regulatory Patterns in the U.S.	20
3.1.2.1 Fair Credit Reporting Act of 1970	21
3.1.2.2 Consumer Credit Reporting Reform Act of 1996	24
3.1.2.3 Financial Services Modernization Act of 1999.....	27
3.2 Financial Privacy Regulation and Information Sharing in Europe	33
3.2.1 Information Sharing Arrangements in European Credit Markets	33
3.2.2 Regulatory Patterns in Europe.....	35
3.2.2.1 Harmonization: The Data Protection Directive of 1995	36
3.2.2.2 Convergence in EU Member States	41
3.3 U.S.-EU Differences in Privacy Regulation: Conflicts and Compromises.....	43
IV. Conclusion	48
References	51
Appendix	55

Figure 1. Credit Reporting and Collection Agencies in the U.S. (1970 – 2000)

Figure 2. Credit Reports sold in the U.S. (annually) (1990 – 2000)

Figure 3. Household Debt-Service Burden and Potential Credit Risk in the U.S. (1980 – 2001)

Figure 4. Consumer Bankruptcies in the U.S. (1970 – 2001)

Figure 5. Fair Credit Reporting Act of 1970

Figure 6. Consumer Credit Reporting Reform Act of 1996

Figure 7. Financial Services Modernization Act of 1999

Figure 8. EU Data Protection Directive of 1995

Figure 9. Blocking Rights of Individuals

Table 1. Compilation of Federal Financial Privacy in the United States (1970 – 2000)

Table 2. Reporting Intervals: Intertemporal Dimension of Credit Report Information

Table 3. Guidelines and Declarations of Privacy in the EU (1980 – 2000)

Table 4. Functional Comparison of U.S. and EU Financial Privacy Regimes

I. Introduction

Global financial markets have undergone major changes in the past decade due to progressive liberalization and sweeping technology adoption in the financial services industries. These industries are information intensive, since they produce and process vast amounts of personal information.

In this paper, information is of central interest, since every economic transaction involves its transfer. Especially in the credit business, information networks are of great interest, because credit, market and systemic risks are intrinsically interrelated. These risks depend significantly on the credit market's underlying information structure, since the mechanisms of information allocation influence the risk management capabilities of financial service providers. In addition, the downstream banking market can also be affected by information distribution due to its effects on the incumbent bank's strategic advantage.

For more than thirty years, researchers have focused their interest on information economics, and seminal articles have modelled information problems in markets for used cars (Akerlof 1970), capital (Grossman and Stiglitz 1976, 1980) or insurance (Rothschild and Stiglitz 1997). More recent work on information problems tend to highlight the interdependency of information, competition and market structure in the banking industry (Dell'Araccia 1998) or the problem of information sharing among creditors (Pagano and Jappelli 1993; Padilla and Pagano 1997, 2000). In summary, these models predict that information sharing reduces informational asymmetries, adverse selection effects and credit rationing, thus, it improves market efficiency (including the efficiency of the price mechanism and resource allocation). Information sharing allows borrower discrimination and, consequently, price-discrimination as well as risk-based pricing. However, the sharing of information among competitors intensifies competition and reduces informational rents through the establishment of an "informational level playing field" among competitors. Therefore, it can be stated that firms not only compete in price and quantity dimensions, but also in an "information dimension." The valuable information accrued by banks have been described as their "informational capital" (Dell'Araccia 1998, p. 14). In this sense, regulatory principles of credit information distribution are of general importance in the era of financial market liberalization.

It is the purpose of this paper to assess the specific information asymmetry problem of privacy in credit market transactions. Privacy protection is the restriction of use

and sharing of personal data, which therefore influences credit market transactions considerably. Several interesting questions arise in this context: How is privacy modelled in information economics? How is privacy regulated and how does this regulation influence information flows among market participants?

There are also several interesting questions concerning information flows in consumer credit markets. What kind of information sharing arrangements have developed in those markets? And, more importantly, in which sense do privacy regimes differ and what kind of property rights regime in information do they assign to data subjects?

In answering these questions, the focus is shifted from information economics to information sharing arrangements in the consumer credit markets of the United States and Europe. In following this explorative approach, we consider the activities of information intermediaries in these markets, such as financial service providers (in the following, we are mainly referring to banks) and credit bureaus (credit reporting agencies). The latter are, apart from banks, the most important information producers and distributors in consumer credit markets. Empirical research in the field of the credit reporting industry and related rating of private borrowers (not firms) is still very limited. The major studies are recent works by Barron and Staten (2000) as well as Pagano and Jappelli (1999, 2000).

The present paper intends to describe information sharing arrangements in a more detailed way and provides a comparative analysis of the recent financial privacy legislature in the United States and Europe.

The analysis reviews both the arrangements as well as their modification through privacy regulation. Privacy in this context means the data protection of private information. The latter is sensitive creditworthiness information as encapsulated in consumer credit reports. In general, this information is proprietary, therefore we use the latter term interchangeably with the term “private.” The value of private information is maximized by an individual (the data subject) by minimizing its disclosure. The value of public information, on the other hand, is maximized by maximizing the number of disclosures and, thus, by reaching an ever greater distribution among market participants. Moreover, the information is only disclosed if the disclosure benefit is higher than the costs from disclosing it.

The described incentive structure can be adverse if it is interrelated and placed within the macroeconomic context. For instance, the disclosure of private information

can be socially valuable in maximizing economic efficiency and welfare,¹ but the individual data subject might still maximize the value of the very same information only by not disclosing it.

The above approach departs from the common dichotomy set by Hirshleifer (1971, p. 563) which defines private information as being available to only one person and public information as being available to everyone. Another description can be found in moral hazard models, here, private information has been described as being private, “either because it is not observable, or because even if it is observable, it is impossible for the principal to know if it is the best-effort decision.” (Macho-Stadler and Pérez-Castrillo 2001, p. 51). This is more closely related to our notion of private information than the Hirshleifer dichotomy. Privacy can be described as the (legal) definition of property rights in personal information. These property rights are assigned to the individual by establishing a system of opt-in or opt-out concerning data collection and by defining the rights of access, correction, erasure and data transmission disapproval (blocking). This structure of rights will determine to what extent the individual can maximize the value of his or her information.

It is generally assumed that the European Union grants more rights to the individual concerning his or her personal information and that it supports a more comprehensive regulation regime than the U.S. (Cate 1997, Charlesworth 2000, Kitchenmann 2000a, Litan and Swire 1998, Singleton 1999). We assume that this is not the case, at least not in strongly regulated areas like privacy of financial information. We also assume that information sharing arrangements are modified by regulatory principles and that property rights assignments in the U.S. and the EU are comparable. The following hypotheses can be derived from the discussion above:

H.1: *The regulation regimes in personal financial information in the U.S. and the EU assign the same property rights to consumers.*

H.2: *If property rights regimes are the same in the U.S. and the EU, then the assumption of a stricter regulation in the EU (in the field of financial privacy) has to be rejected. This could be characterized as a convergence of privacy regimes.*

¹ By welfare we mean consumer rents and producer rents.

The paper is a case study of the regulatory regime of information flows in the U.S. and the EU in the 1990s. Only the major U.S. federal laws and the EU Data Protection Directive will be reviewed. For simplicity, these acts will be visualized graphically. Since this paper is explorative in its character, and due to limited official data available, this paper mainly employs a descriptive approach.

The remainder of the paper is organized as follows. Section 2 discusses information economics models and the formalization of privacy. Section 3 gives an account of the credit reporting arrangements in the U.S. and Europe. Major regulatory efforts in both regions are characterized as well as differences in values and approaches towards privacy. Section 4 concludes.

II. Information Economics Models

For more than thirty years, researchers have devoted their interest to information economics (for a historical account see Lambertson 1984, 1994). In this section, we review some of the authors in the light of their formalization of information extraction sources and transmission channels. Our main focus will be on credit markets models. In a later section (2.2) we discuss the notion of private information and information asymmetries in these models.

2.1 Information Economics in Credit Market Models

Problems like asymmetric information, adverse selection and moral hazard have been introduced in a variety of markets, for instance the ones for used cars (Akerlof 1970), insurance (Rothschild and Stiglitz 1997) and capital (Admati and Pfleiderer 1988; Grossman and Stiglitz 1976, 1980). Especially capital market models provided the formalization of the price system as an endogenous information aggregator with varying efficiency (Grossman and Stiglitz 1976, 1980). Several models in this field follow the Hirshleifer dichotomy (Hirshleifer 1971, p. 563) as already noted (one example is the model by Admati and Pfleiderer 1988). We distinguish different kinds of credit market models according to the underlying structure of interacting agents assumed by the authors.

Direct Observation and Signal Extraction

In this line of argument, information is extracted by monitoring (screening) the applicant and his investment projects directly. The investor seeks funds from the investor (creditor). Hence, the structure is one of direct interaction.

In such models, it is generally assumed that entrepreneurs invest in projects with different returns and that they possess private information about either their prospects or their ex post realized returns (Bhattacharya and Thakor 1993, p. 9). Investors, on the other hand, do have an informational disadvantage due to their limited knowledge concerning payoffs. An investor can acquire knowledge by incurring monitoring costs. These models can be dynamic by including payoff realization in a second period (see Bhattacharya and Thakor 1993 for a survey of the literature). The costs of monitoring and control of the entrepreneur is higher than in an intermediated structure.

Financial Intermediation and Direct Signal Extraction

In a second class of models, intermediaries are introduced that reduce information asymmetries by bundling, monitoring and, thus, the reduction of monitoring costs. In general, the literature discusses the economic justification of the intermediaries' existence, their Pareto-improving effects and their effects on risk-sharing and credit rationing.

This kind of market structure has attracted a lot of interest by researchers since it is the one that is typical for credit markets. Stiglitz and Weiss (1981) provide a (static) competitive equilibrium model with credit rationing in the steady state, where the bank denies credit at any price. They further show that the interest rate affects the riskiness of the borrower pool through an adverse selection effect as well as an incentive effect.² “Both effects derive directly from the residual imperfect information which is present in loan markets after banks have evaluated loan applications.” (Stiglitz and Weiss 1981, p. 393)

For banks, the interest rate acts as an endogenous screening device (separating good from bad risks),³ analogously, the bank's loan portfolio riskiness is affected. In their model, the authors allow a bank to distinguish projects with different returns, while the riskiness of those projects remains unobservable. Hence, information is extracted via endogenous observation (default of borrowers) as well as via the interest rate (i.e. the price system). In a later article, the authors explain dynamic aspects of credit rationing (Stiglitz and Weiss 1983). In this model, the bank can threaten to deny credit in the second period. Therefore “it is optimal to condition the credit allocation decision on the borrower's credit history.” (Bhattacharya and Thakor 1993, p. 19) In this sense, the financial intermediary is the delegated monitor which accrues benefits from economies of scale by accumulating information about many borrowers. In this subgroup of models, the information extraction source is modelled endogenously, since information is extracted from transactional experiences of both intermediary and borrower.⁴ In addition, the dynamic perspective is augmented by an intertemporal information allocation that is also modelled endogenously.

² The first effect reduces a bank's expected returns (even after accounting for the interest rate increase), while the second induces moral hazard problems since the investor now may take higher risk projects into consideration.

³ The authors assume that bad risks will be willing to pay higher interest rates.

⁴ We do not take other informational distortions into account arising from the interaction of depositor and bank.

Financial Intermediation with Private Information

The distinction between private and public information can also be found in credit market models. To carry the present analysis one step further, we refer to a special sub-group of such models that have developed only recently, namely models incorporating assumptions about proprietary information (Dell’Ariccia 1998, Marquez 2001).

Dell’Ariccia (1998) analyzes the effects of informational asymmetries on the market structure in the banking industry with a multi-period model of spatial competition akin to the Salop approach. In his model, the lending relationship enables banks to gather creditworthiness information about their borrowers (“learning by lending”), which results in an informational monopoly and, thus, market power: “Through the lender-borrower relationship, banks are able to acquire some of their clients private information, that they can exploit in subsequent periods. We assume that this information is proprietary to the lending bank.” (Dell’Ariccia 1998, p. 9). Dell’Ariccia (1998) assumes that the type distribution of new potential borrowers is public information, while the type of any individual borrower remains unknown until the end of the first period. The credit history of a borrower is publicly available, the bank, however, may learn additional information through lending to the borrower. Informational barriers to entry arise due to the knowledge advantage of the incumbent bank concerning its borrowers. Potential entrants, on the other hand, face more severe adverse selection problems and are lesser able to discriminate. The latter problem vanishes in the situation of a rising share of new borrowers in the market (the so-called turnover). The author states that despite the deregulation of financial markets, different degrees of competition will prevail in different market segments due to the informational barriers faced by potential market entrants.

Different depositors delegate monitoring and funds management to the bank. This structure is also assumed in Marquez (2001). The author constructs a simple competitive model of banks under lending constraints. Here, proprietary information is explicitly not transferable to other creditors, thus borrowers remain unknown to new market entrants. As in Dell’Ariccia (1998), banks know more about their customers as can be extracted from a publicly available credit report.

The author draws a number of conclusions from these implications. First, increasing competition among banks may lead to inefficiencies since smaller banks have less information about the market than larger banks (Marquez 2001, p. 13). Second, banks that enter the market face higher adverse selection costs, due to the already adversely

selected pool of rejected applicants that is left over from incumbent banks. Again, the informational advantage is claimed to vanish if borrower turnover is high, an assumption that resembles the one by Dell'Ariscia (1998). Marquez (2001, p. 3) explicitly states that borrower turnover is a measure of information asymmetries.

Gehrig (1998), on the other hand, shows that markets are not easily contestable if banks invest in screening technology. Banks are viewed as information producers which use creditworthiness tests that allow them to discriminate between worthy and unprofitable projects. By investing resources, the precision of a test can be adjusted (Gehrig 1998, p. 3).

A more precise screening reduces type-I errors (rejection of good risks) and type-II errors (acceptance of bad risks). The novelty of his model is the endogeneity of filter characteristics, since banks are allowed to select different (imperfect) creditworthiness tests. Gehrig (1998, p. 6) assumes that banks perform a creditworthiness tests and that this test is costly. Moreover, the test results are assumed to be private information of the bank performing the test. It is then up to the banks, if they want to share their information (Gehrig 1998, p. 11). The author then analyzes a two-stage game with an market entry in the second period. As a result, competition may negatively affect the banks' incentives to screen, and, thus, to produce economically valuable information.

What do these models have in common concerning information extraction and transmission? First, the focus is on the bank-borrower relationship. This transaction constitutes the major information source. Second, information is not shared among competitors, but regarded as property which represents a competitive advantage. The aforementioned models do not allow endogenous sharing arrangements of private information. Moreover, some of them explicitly state that banks have no incentive to share their information (see Dell'Ariscia 1998, p. 20). These assumptions, however, stand in stark contrast to what can be actually observed in consumer credit markets (we will elaborate on that point below). Banks do share their information, even *with competitors*. Only recently, authors started to study sharing arrangements.

Financial Intermediation with Sharing of Private Information

A major step in this direction is the seminal work of Pagano and Jappelli (1993) and Padilla and Pagano (1997, 2000). In an advanced adverse selection model, Pagano and Jappelli (1993) analyze how information sharing can arise endogenously. The authors assume lending to heterogeneous households (risky and less risky ones). In their model, each lender faces a borrower turnover. The reservation values of the households are considered to be private information (Pagano and Jappelli 1993, p. 1696). Moreover, each lender is assumed to be a local monopolist. The authors find that credit bureaus are more advantageous the greater the number of loans, the higher the geographical mobility, the lower the systems operating costs and the greater the number of participants (Pagano and Jappelli 1993, p. 1696).

The authors argue that the incentives of lenders to share information about borrowers (via a credit bureau) are positively correlated to the mobility and heterogeneity of borrowers and the advances in information technologies (Pagano and Jappelli 1993, p. 1705). The correlation with the size of the consumer credit market, however, is ambiguous. The benefit of setting up a credit bureau rises with the increase in loan demand, household mobility and the decrease of operation costs of the system and with the uncertainty of borrower quality. Since the utility of a reporting system increases with the number of participants, credit bureaus are natural monopolies (Pagano and Jappelli 1993, p. 1699).

Padilla and Pagano (1997) develop a two-period model with imperfectly competitive banks to show how endogenous information sharing among creditors can arise. In the first period, some of the banks have better knowledge about borrowers (the entrepreneurs) than their competitors. Banks can share their information by the end of period 1. Two effects arise: if information is shared, fiercer competition will prevail in period 2 (lowering profits), while borrowers will refrain from defaulting (increasing profits). “The ex-ante decision to sign an information sharing agreement depends on which effect is expected to prevail.” (Padilla and Pagano 1997, p. 207) In a later article (Padilla and Pagano 2000), the authors stress the disciplinary effect, information sharing exerts on borrowers. This is the case if borrowers know that creditors share information and that a past default will possibly adversely affect future credit grants. As already noted, this will reduce opportunistic behaviour. However,

the incentive compatibility critically depends on the type and amount of information shared, i.e. the information regime.⁵

In summary, these models have the following aspects in common: they introduce endogenous sharing arrangements and acknowledge the role of an information intermediary, namely the credit bureau. This is the informational market structure in consumer and commercial lending markets that can be found in industrialized countries. Furthermore, these multi-periodic approaches characterize the information extraction source more precisely than simply referring to the transaction relationship of creditor and borrower. The ex-ante screening of applicants in the case of a sharing arrangement is conducted via the transmission of credit reports about borrowers, that is via the sharing of their credit histories. In other words, information asymmetries can be altered endogenously in these models.

The last model we want to introduce is the transactions privacy model by Kahn, McAndrews and Roberds (2000). This bargaining game model under full Coasian bargaining and natural contract restrictions assumes two transaction partners, A and B and an (annoying) telemarketing firm C. The authors then consider equilibria under a number of information revelation regimes.⁶ Under the social planner perspective, there are two cases:

1. Transaction occurs and remains *private* if:

$$v_A + v_B \geq 0 \text{ and } w_A + w_B + w_C < 0$$

2. Transaction occurs and is made *public* if:

$$v_A + v_B + w_A + w_B + w_C \geq 0 \text{ and } w_A + w_B + w_C \geq 0$$

with v being the value of the transaction, and $v_A + w_A$ denoting the utility level of A and $v_B + w_B$ the utility level of B; w_C stands for the utility of C (Kahn, McAndrews and Roberds 2000, p. 6 – 8). The term $w_A + w_B + w_C$ is described as the informational payoffs or the overall “value of information,” if “this sum is negative, then its absolute value can be thought of as the so-called ‘*value of privacy*’.” (Kahn, McAndrews and Roberds 2000, p. 8, emphasis added). In our context, especially the case in which A and B have a contract that requires information release (to C) is of interest. Then, the total value of the transaction to A and B is $v_A + v_B + w_A + w_B$

⁵In this case ex-ante competition eliminates informational rents so that interest rates cannot be reduced further. Borrowers have no incentive to change effort levels, if data about their quality is exchanged (Pagano and Jappelli 2000b, p. 12).

⁶The regimes differ in respect to the possibility of C to discover the identities of A and B.

(Kahn, McAndrews and Roberds 2000, p. 11). In summary, the authors show that there are situations in which bargaining is likely to be impeded because of difficulties in making credible commitments or because of investments that must be made in advance to utilize the resulting information.⁷

2.2 Implications for the Formalization of Privacy

Most of the models described above refer to lending to firms (Dell’Ariccia 1998; Gehrig 1998; Marquez 2001; Padilla and Pagano 1997, 2000). However, they may also apply to household lending with some modifications. Such a modification would be the inclusion of data use restrictions in the modelling to acknowledge privacy regulation. In this sense, different revelation regimes would have to be assumed since they influence the ability to assess the creditworthiness of a consumer. Two models provided such an analysis: Pagano and Jappelli (1993) and Kahn, McAndrews and Roberds (2000). None of the reviewed models above except the transactions privacy model explicitly formalizes privacy, because (as stated) most of these models refer to the firm as the borrower.⁸

The definition of private information is not consistent within the discussed models, whereas Pagano and Jappelli (1993, p. 1696) state that the households reservation values are private information, Dell’Ariccia (1998, p. 9) claims that banks acquire “some of their clients private information” without specifying more precisely. The latter author, however, explains that different degrees of information asymmetries exist (relating to borrowers) and that agents can diminish the importance of those asymmetries by providing collateral (Dell’Ariccia 1998, p. 5).

Marquez (2001, p. 3) takes another approach by claiming that a measure of information asymmetry can be parameterized by the borrower turnover. New borrowers are associated with less information, the information asymmetry relating to them is therefore greater than the one relating to already known borrowers.

A major step in our direction is the transactions privacy model. The authors adopt an economic definition of privacy “as being the ability to conceal information” that is potentially beneficial (Kahn, McAndrews and Roberds 2000, p. 2, 24). This definition clearly stands in the tradition of the early seminal articles by Posner (1981) and

⁷For these cases, the interested reader is referred to the original work (Kahn, McAndrews and Roberds 2000, p. 12)

⁸In this case trade secrets or other sectoral legislature (i.e. bank secrecy laws) may generate a sort of “privacy sphere,” but these restrictions on information extraction and transmission have not been modelled so far.

Stigler (1980). In the context of credit markets, *financial privacy* can be defined as being the borrower's right not to disclose private information to the creditor and, therefore, as constituting an information asymmetry that *cannot* be altered by the creditor due to legal restrictions.

In this case, privacy restrictions determine informational asymmetries and may reveal an efficiency increasing or decreasing effect in the credit market. Another problem in this context is that the privacy regime assigns property rights in personal information to individuals and that a weak assignment can lead to informational externalities that reduce market efficiency.

The current generation of information asymmetry models should be expanded by formalizing the problems that relate to personal privacy. By taking the current regulation as well as information distribution patterns into account, new models could clearly contribute to our understanding of the credit market mechanisms. In reviewing the actual regulatory patterns and information flows in the credit market in the next section, we hope to provide some new insights that could also contribute to the further development of the next generation of models.

III. Analysis of Privacy Regulation in the U.S. and the EU

The previous sections summarized how models treated information flows in credit markets and introduced approaches that expand the canonical literature by proliferating models that incorporate public and private information as well as information sharing arrangements.

3.1 Financial Privacy Regulation and Information Sharing in the U.S.

3.1.1 Information Sharing Arrangements in U.S. Credit Markets

This section is devoted to the networks of sensitive financial information in the U.S. As Pagano and Jappelli (1993, p. 1711) state, credit bureaus developed in the United States with the increased household mobility and mass urbanization in the second half of the 19th century. Due to these socio-economic developments, informational asymmetries between creditors and borrowers increased, a problem that was reduced by the information collection of credit bureaus. In the U.S., the regulation of the banking sector contributed to the establishment of information sharing arrangements, because it established a dual banking system (National Bank Acts of 1863 and 1864)

and intrastate as well as interstate branching restrictions that prevented banks from competing in one national market.

This segmented market structure allowed potential competitors to share valuable information via credit bureaus. Cole (1992, p. 220) reports that one of the first bureaus was established in Brooklyn in 1860. In 1906 the first national organization of credit bureaus was founded – the National Association of Retail Credit Agencies (now Associated Credit Bureaus). This organization was set up as a network of six small credit reporting agencies. The founding of credit bureaus increased remarkably in the 1920s as well as the 1950s with the introduction of credit instruments like consumer credit and innovations like the credit card.

In the 1970s the industry started to employ IT on a larger scale. This investments and the following database concentration precipitated consolidation and concentration processes in the industry. This was also reinforced the tendencies to natural monopoly, credit bureaus realize scale and scope effects in reaching an ever larger market share.⁹

For brevity, the development in establishment numbers for the credit and collection industry in the United States is shown by **figure 1** in the appendix. In the 1970s, there were 2250 credit bureaus in the market. This number has been reduced to 650 bureaus in the 1990s. In the latter decade, an oligopolistic market structure emerged which is characterized by the “Big Three” leaders, Experian (Ex-TRW), Trans Union and Equifax. Nearly all other credit bureaus that are computerized have access arrangements with one of the big providers, as Cole (1992, p. 220) reports.

The aforementioned scale and scope effects also affect coverage, which has the propensity to universality. Credit bureaus compete in several dimensions: price, coverage rates, data quality scoring services and information segments.¹⁰ In the United States, coverage of the consumer credit market approached universality in the 1960s (Pagano and Jappelli 1993, p. 1712). Nowadays, more than 800 million credit profiles are sold per year. Some preliminary estimates are compiled in **figure 2**.¹¹

The information pooled by a credit reporting agency is provided by various sources, e.g. banks, credit card companies, retailers, insurance companies, leasing companies,

⁹In addition, credit bureaus try to receive information from as many sources as possible (Cole 1992, p. 224).

¹⁰By “information segment” we refer to different segments like demographical information or credit information.

¹¹The figure is only preliminary, since data on this issue is very limited. It will be revised as soon as better data is collected.

employers or public registries.¹² Since most of these institutions are credit-providing, they are also the users of credit histories. The disclosure incentive of creditors is ensured by the “principle of reciprocity” (Pagano and Jappelli 1999, p. 8): All information suppliers are granted access to the data base, while non-disclosure is sanctioned. Due to the competition effect this has not always been without problems.¹³ In general, the credit bureau serves as a conduit that secures precipitated information accumulation and channelling. In addition to credit reports, it also provides scoring services.

As Cole (1992, p. 231) states, credit bureaus usually charge for their services a base fee and an additional amount that depends on the volume of transmitted reports. Through these interbureau reporting schemes, the movements of individuals can be traced throughout the United States while at the same time creditors in various locations have access to the databases of the major bureaus.

A credit report can provide different kinds of information. Pagano and Jappelli (1999, p. 11) distinguish black (negative) and white (positive) information. The first simply describes defaults or arrears, while the latter represents detailed reports on assets and liabilities, guarantees, debt structure, repayment patterns and employment status. In the U.S. and Europe, financial institutions share black and white information (for an detailed overview see Pagano and Jappelli 1999, p. 12 – 13; 2000, p. 29). The activity of credit bureaus and the information allocation in credit markets cannot be discussed without considering credit scoring, since scores represent the creditworthiness signal that may determine whether a credit is granted or not.

Credit scoring has been invented in the 1930s and was developed commercially in the 1950s. Especially the introduction of the credit card in the U.S. in the 1950s made credit scoring a useful tool for financial intermediaries (Thomas 2000, p. 151). Nowadays, credit scoring is used in a wide range of consumer lending activities ranging from credit card approval to small business and mortgage lending. According to a 1996 Senior Loan Officer Opinion Survey of Bank Lending Practices (cited in Mester 1997), 97% of the responding banks used scoring techniques in their credit card operations. Credit scoring is used by both credit bureaus and creditors directly.

¹²Public records reviewed for data collection purposes are criminal records, property lien records and bankruptcy filings (Schwartz and Reidenberg 1996, p. 288).

¹³In 1999, the practice of withholding full information by major credit card companies raised the concern of banking regulators (Fickenscher 1999).

Creditors using their own models receive the information on borrowers directly from loan applications as well as from credit bureaus. Scoring models are diversified, ranging from the specialization on specific portfolio types¹⁴ to a particular industry¹⁵ or to high and low credit requests (Friedland 1996, p. 20 – 21). Moreover, the major credit bureaus also provide revenue scores of potential customers which can be used to identify the high-value types. The data can be merged with the credit score into a comprehensive risk/revenue profile (Friedland 1996).

In the United States, the widely used three-digit FICO score ranges from 300 – 900. Within this range, 700 or higher is considered as excellent or good credit risk, below 680 lenders begin to scrutinize the application more closely, and a score below 620 is considered as a problematic or bad credit risk. As Lim (2001, p. 54) reports, 60% of the borrowers score 700 or higher, while only 13% score below 600.¹⁶ The cut-off threshold varies from creditor to creditor (Jackson and Johnson 1983, p. 3).¹⁷

The information on borrowers in the data bases of credit bureaus is usually updated every month: “Each of the three national credit reporting agencies process in excess of 2 billion items information from credit grantors, each month.” (Associated Credit Bureaus 1998)

Statistical risk prediction methods used to build a scorecard¹⁸ are mainly discriminant analysis (essentially linear regressions), logistic regressions (as a variant of the former) and classification trees (Thomas 2000, p. 152). Other authors identify four methodological approaches: (1) the linear probability model; (2) the logit model; (3) the probit model; and (4) discriminant analysis (Altman and Saunders 1998, p. 1723). Newer non-linear statistical and Artificial Intelligence modelling techniques include neural networks, expert systems, genetic algorithms and options-pricing theory models as well as hybrid approaches (Mester 1997, p. 3; Thomas 2000, p. 152).

The latter class consists of methods that reveal the capability to evolve and adapt to changing socio-demographic trends. The individual methods will not be discussed

¹⁴For example auto lending, installment lending and small business lending.

¹⁵For instance personal finance, bank card loans or instalment credits.

¹⁶So far, the individual rarely got to know the score. However, the credit reporting agency Equifax now starts to sell the score to consumers. The other two big credit bureaus Trans Union LLC and Experian Information Solutions have announced to release their own non-FICO score products (Lee 2001, p. 10). This provides an interesting example of “disclosure competition.”

¹⁷The cut-off threshold is the critical benchmark the applicant has to achieve in order to have a credit approved.

¹⁸A scorecard is a credit scoring model.

here in greater detail (see Altman and Saunders 1998; Hancock 2000; Lopez and Saldenberg 2000; Ryman-Tubb 2000 and Thomas 2000).¹⁹

The “memory” of the system is constituted of variables and their variation included in credit scoring models as well as the updating of the credit history.²⁰ The first aspect to be considered is the variation of predictor variables in credit scoring. To stay with the FICO example, this score is determined to 35% by payment history, 30% total amount of debt, 15% by duration of accounts, 10% by application history and 10% by amount and type of credit (Lim 2001, p. 55 – 56). A change in these variables and the relationship among them determines how the score changes. As mentioned above, in the U.S. there is a 30-day updating interval (Cole 1992, p. 228).

A second important aspect is the model building itself. Scoring models have to be frequently rebuilt to ensure the incorporation of changes in the relationships between creditworthiness and underlying variables. To avoid population drift,²¹ a scorecard has to be redeveloped every 18 months to 2 years (Thomas 2000, p. 164). Otherwise, the efficiency of the credit scoring system will deteriorate over time. Furthermore, the scoring model has to be adjusted dynamically to changes in the borrower pool as well as to macroeconomic changes. To avoid a selection bias, the borrower pool on which the model is build has to include characteristics of those who were granted credit and those who were denied it (Mester 1997, p. 8 – 9, footnote 11).

Last but not least, macroeconomic changes have to be included as well. If there is a time lag, a model’s predictive capacity can be reduced by business cycle fluctuations. Therefore, data of a model should include two phases. Borrowers who established good credit histories in an expansion may default in times of recession, since the downturn may have altered their economic condition as well as their risk behaviour (for further discussion see Zandi 1998).

In the second half of the 1990s, the credit risk potential rose in the U.S. (see **figure 3** in the appendix).²² This is suggested by the overall rise in the ratio of total payments

¹⁹In this context, it has to be acknowledged that statistical risk prediction and modelling techniques are decision support systems that help to redirect underwriters to applicants near the risk cut-off.

²⁰There may be up to 50 or 60 variables considered in the construction of a scorecard. However, in the final version of the model, only 8 to 12 variables might be included that yield the most predictive combination (Mester 1997, p. 2).

²¹Population drift is the change in the distribution of population characteristics over time.

²²For an explanation of the indicators credit risk potential, delinquency rates and bankruptcy rates, the reader is referred to the explanations of the figures.

on consumer installment to disposable income.²³ Whereas the total payment debt ratio for U.S. households was 13.32% in 1990, it decreased to 11.94% in 1993, but then increased again to 14.32% in 2000 – a new record compared to the ratios of the 1980s. Delinquency rates probably provide a better degree of household credit difficulties, since they are the number of consumer loans delinquent as a percentage of all loans. After rising in the first half of the 1990s, the delinquencies rates varied only slightly at a high level in the second half.

Most alarming, however, has been the strong increase in the bankruptcy rates (**figure 4**). This was caused by several reasons, for example medical bills, divorces or changes in bankruptcy laws (McKinley 1997). The figures document once more the significance of risk measuring and availability of creditworthiness information.

This also highlights another aspect. It critically depends on the data updating and model evolution as well as validation processes in which form feedback is subsequently incorporated in the formalization of models. According to a 1996 Senior Loan Officer Opinion Survey of Bank Lending Practices (cited in Mester 1997), 54% of banks that use scoring in credit card operations had to redefine their optimistic models due to prediction problems. 80% of the responding banks raised the cut-off score that applicants need to get a credit granted.

These problems have been recognized recently by the Basel Committee on Bank Supervision. In a study of the internal risk rating continuum of international banks, the Committee identified several similarities among the different rating systems (Basel Committee on Bank Supervision 2000, p. 4). Banks do acknowledge similar types of risk factors, but the mix of these factors differ.²⁴ The majority uses an assessment of the counterparty, in addition, some also select the transaction characteristics as a risk indicator.

3.1.2 Regulatory Patterns in the U.S.

The following sections characterize the evolution of information flows based upon the structure of laws. For the purpose of our hypothesis the author refers to the relevant laws in the 1990s on the background of important historical legislation. This will be sufficient to exemplify how information patterns have been modified in the last decade.

²³Interest rate effects are factored out in the Federal Reserve Board calculations.

²⁴These are for example the borrower's balance sheet or his income statement.

In their functional similarity analysis, Schwartz and Reidenberg (1996, p. 12) characterize the American approach as an multilayered one. This means that several protective measures (derived from constitutional articles) are codified in federal legislature. Another layer of privacy legislature is added by state laws that also establish privacy provisions. Furthermore, courts and the industries' self-regulation have to be taken into account as well. All in all, this generates complex patterns of overlapping and segmented competencies and introduces different layers of regulation. There are several acts that provide the background of regulation at the end of the 1990s. An overview is presented in **table 1 in the appendix**.

We concentrate our analysis on the Fair Credit Reporting Act of 1970 and its amendments in the 1990s, since these acts are sufficient to characterize the regulation of information flows in the private sector.²⁵ Again, our emphasis will be on banks as information furnishers. For simplicity, the structure of the information flows will be visualized graphically.²⁶

3.1.2.1 Fair Credit Reporting Act of 1970

The Fair Credit Reporting Act (FCRA) regulates permissible purposes of report disclosures, the procedure for disputing credit report inaccuracies and requirements for users of these reports.²⁷ Accordingly, a “credit reporting agency” is any person which, for profit and non-profit, regularly engages in the practice of assembling and evaluating consumer credit information for the purpose of furnishing consumer reports to third parties.

There are several purposes for which the FCRA allows the disclosure of a credit report, these are for example:

- (1) in connection with a credit transaction (in including credit extension and review of an individual's account);
- (2) in connection with the underwriting of insurance;
- (3) in connection with any other business transaction initiated by the consumer, in which the report user has a legitimate business need.²⁸

²⁵We exclude investigative consumer reports and disclosure for employment purposes.

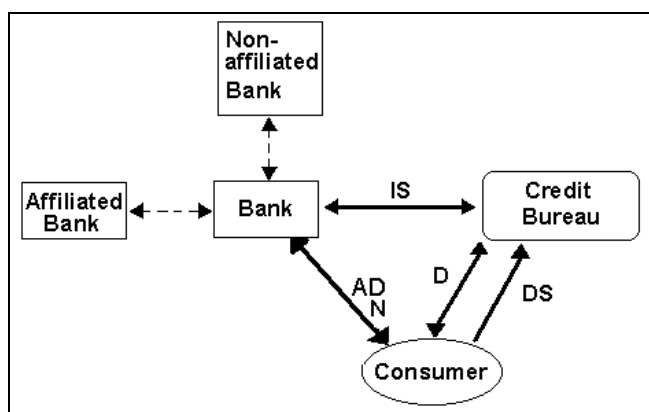
²⁶The author is aware that these figures reduce the information contained in the laws. For details, however, the reader is referred to the texts of the acts.

²⁷Under the FCRA (§ 603 d [15 U.S.C. § 1681a]), a “consumer report” is defined as any written, oral, or other communication of any information by a consumer reporting agency bearing on a consumer's creditworthiness, credit standing, credit capacity or character and personal characteristics (Federal Trade Commission 1999).

²⁸See FCRA, § 604 [15 U.S.C. § 1681b]

Schwartz and Reidenberg (1996, p. 290) interpret these limits as indirect purpose specification of data collections compiled by credit bureaus. However, bureaus also use their reports for marketing purposes and screening services that enable businesses to identify potential high-value customers (Schwartz and Reidenberg 1996, p. 292). The act obligates credit reporting agencies to remove information according to the periods given in **table 2** in the appendix, but there are important exceptions to this rule (see endnotes of the table). The act can be visualized as in **figure 5**.

Figure 5: Fair Credit Reporting Act of 1970



The abbreviations stand for the major rights and responsibilities under the act. D stands for disclosure, in general, the law directs credit bureaus to provide the information in the file to the consumer. An explicit exception is the credit score or any other predictive score relating to the consumer. Furthermore, the FCRA obligates bureaus to follow “reasonable procedures to assure maximum possible accuracy” (FCRA §607[b]) in compiling information about consumers.

If consumers dispute information (DS), the agency must verify the disputed information or delete it. Inaccurate information must be corrected, but if the information is still disputed even after the investigation by the credit bureau, the consumer may file a statement with his point of view that has to be distributed with the report in the future.

For report users, in our example banks, duties inferred from this law only refer to cases in which the consumer has faced adverse action (AD) by the report user.²⁹ In such cases, the user has to notify (N) the consumer which agency was the furnisher of the credit report. Access rights only apply to credit agencies and not to the business

²⁹According to the FTC (1997a), „adverse action” relates to all business, insurance, credit and employment actions that have a negative impact on the consumer, for example credit denial or promotion denial.

that obtained the credit report. It is important to acknowledge that action concerning inaccuracies can only be taken against credit bureaus, not against the information furnisher, since the latter is not regarded to be a credit reporting agency under the law.

On the basis of these measures, the FCRA generated several regulatory gaps and incentive misalignments. For instance, the FCRA did not place any burden on information suppliers to provide accurate information, since the regulatory patterns applying to credit reporting could not be applied to data furnishers. Even if there were quite strict standards within the supplying industry, the quality of the information flowing to credit bureaus was still not regulated. Instead, the law placed the primary burden on the credit bureau - the party with the lower interest in consumer privacy and the highest costs of information verification as Maurer and Thomas (1997) observe.

The reinvestigation procedure in inaccuracy disputes had to be completed within a “reasonable period of time” according to the act. This proved to be not clear enough to ensure a quick verification process. Instead, the FTC reported in 1991 that it took an average of 23 months to correct inaccuracies (Schwartz and Reidenberg 1996, p. 299).

Another critical aspect is that the law did not require a notification of the individual in case of the transferral of a credit report. Therefore, the structure of information flows among report sellers and users remained mainly non-transparent to consumers. The information sharing arrangement with affiliates as well as non-affiliates have not been regulated also. For over 25 years this regulatory regime was not altered in an important way by Congress. However, the first significant changes were introduced in the 1990s.

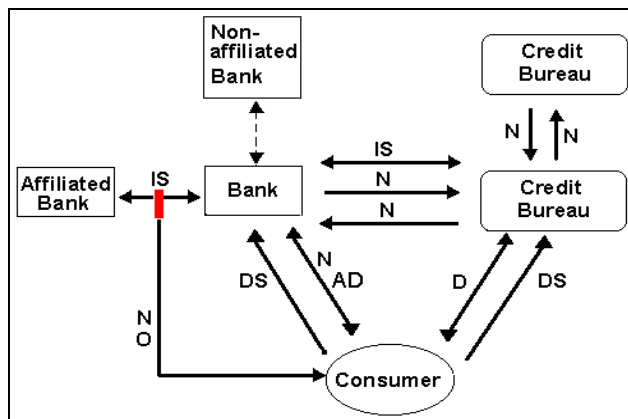
3.1.2.2 Consumer Credit Reporting Reform Act of 1996

In 1996, President Clinton signed the Consumer Credit Reporting Reform Act (CCRRA) which amended the FCRA.³⁰ Its provisions went into effect in 1997. The act transferred the authority of the FCRA enforcement to several agencies (for instance the FTC, OCC and the FRB).³¹

Moreover, it imposed new duties on credit bureaus and their information suppliers. The act was intended to close the loopholes that were left in the regulatory scheme by the FCRA. Its provisions will be reviewed schematically in the following according to the rights and duties for the credit reporting industry, the borrower and the information supplier.

According to the CCRRA, the credit reporting agency has to reinvestigate inaccuracy claims, inform the consumer of the results and provide her with a free copy of the report. Inaccurate information has to be removed within a period of 30 days. As presented in **figure 6** the largest credit bureaus are required to notify (N) other national reporting agencies if items had been changed or deleted, this has to be done through a joint notification system of the national credit bureaus (FTC 1997a).³²

Figure 6: Consumer Credit Reporting Reform Act of 1996



These provisions allow accurate and verifiable information to stay on file, while inaccurate items have to be deleted. Their possible re-insertion is forbidden. For the

³⁰The CCRRA was included in the Omnibus Consolidated Appropriations Act for Fiscal Year 1997 (P.L. 104 – 208). Title II, subtitle D, chapter 1 is termed “Consumer Credit Reporting Reform Act.”

³¹Federal Trade Commission (FTC), Federal Reserve Board (FRB), Office of the Comptroller of the Currency (OCC).

³²In 1998, Associated Credit Bureaus (1998) reported that 75% of all consumer requests for re-verification are completed within 10 days.

first time, the agency must weight information from consumers against information from creditors and delete information that cannot be verified (Privacy Rights Clearinghouse 1997).³³

Information providers (in our example banks) are termed furnishers under the act if they share information (IS) with credit bureaus on a regular basis. For the first time, the CRRRA established duties as well as liabilities for information furnishers. Furnishers are now prohibited to disclose information that they know (or consciously avoid knowing) is inaccurate (FCRA 1997, Sec. 623 (a)(1)(A) as cited in FTC 1997a).³⁴

Information providers also have certain duties concerning disputes (DS). Now the bank is obligated to correct, update and resubmit information, in addition, it has to notify (N) all credit reporting agencies of the corrections.³⁵ Moreover, it also has to function as “conduit” in case of a notification by the consumer that certain information is inaccurate. If the inaccuracy is a fact, a notice of its correction has to be forwarded to the credit bureau. If the information is in dispute between bank and customer, this fact also has to be forwarded to the credit reporting agency.

Reciprocally, the credit bureau has to inform the data supplier that a consumer disputes certain information that was provided by the furnisher. The furnisher then has the duty to initiate an investigation and review all relevant information that is provided by the credit bureau. The time frame for this process is again 30 days (45 days if the consumer submits new information).

In general, financial institutions are not legally required to report delinquencies. However, if a creditor reports them, the data has to be completed by adding month and year of the delinquency. This is intended to provide the credit bureau with a reference date that it can calculate the obsolescence of the information (Fischer and McEneney 1997, p. 9). Moreover, if a consumer closes his or her account voluntarily, this fact as to be indicated in the information transmission as well.

³³In an informal letter, FTC attorney Brinckerhoff wrote that the new FCRA duties “neither expanded nor reduced” the duties on credit bureaus (Brinckerhoff 1999, p. 2).

³⁴Every business that provides a dispute notice is exempted from this provision (FTC 1997b, p. 2)

³⁵Dispute results have to be reported to the credit bureau within a time frame of 30 days. If the consumer submits new information within this period, the deadline is prolonged to 45 days.

Credit report users must certify the permissible purpose for which they want to obtain the report and they must certify that it is *not* used for any other purpose.³⁶ As in the FCRA of 1970, the consumer has to be notified in written form or orally if his or her report led to an adverse action on the side of the report user. Such a notification has to include the name of the agency and its toll-free number. If an adverse action is based on information received from an affiliate,³⁷ the consumer has to be informed about his right to have the report disclosed. The other side has to disclose the “nature” of its information within 30 days after receiving the consumer’s request (FCRA 1997, Sect. 615 (b)(2)).

The new act allows affiliates to share credit information, but only after the company notified the consumer about the sharing arrangement and provided him with an opportunity to opt-out (O). The red mark stands for the blocking right of the individual.

In the past, the regulatory agencies restricted information sharing among members of the same bank holding company and treated them as unrelated “third persons.” - “(t)hus, banks often refrained from sharing customer information with members of their own corporate family.” (Fischer and McEneny 1997, p. 6) If the bank engaged in sharing non-experience information it risked to be classified as credit bureau. With the new act, experience information can be shared unlimited, while other information (including credit reports) can be shared after notice and opt-out.

While the banking industry views affiliate sharing as efficiency-enhancing regulation that generates the possibility of cross-marketing (Fischer and McEneny 1997, p. 6), privacy advocates criticized it as sweeping exception to the definition of a credit report: “It allows a subsidiary of a bank holding company to share credit reports and information from credit or employment or insurance applications with other affiliates even those without permissible purpose.” (Privacy Rights Clearinghouse 1997, p. 2). The organization adds further, that this was the most controversial change in the act, since it could result in the establishment of subsidiaries that operate like credit bureaus but are exempted from the regulation.

³⁶This can be done through “general certifications” as they are already typical in the industry (Fischer and McEneny 1997, p. 11)

³⁷An affiliate is defined by common ownership or control. This typically applies to members of the same corporate family.

Creditors as well as insurers are permitted to obtain information about *potential* customers from credit bureaus. These pre-screening lists induce a “firm offer of credit” to all listed individuals. In the past, FTC and federal banking agencies interpreted this standard as a *requirement* of granting a loan or opening an account (Fischer and McEneney 1997, p. 6). The offer could only be withdrawn in certain, rare and unusual circumstance, for example in the case of bankruptcy. This event had to occur between pre-screening of the customer and his acceptance of the offer.

In this context, the CCRRA grants greater flexibility to banks. It inserted a post-screening period in between pre-screening and acceptance. The “firm offer” principle is clarified by certain procedure provisions. Criteria for screening must be defined before the actual screening process takes place and they must be maintained on file for 3 years (from the date of the offer). The consumer, on the other hand, has to be informed, that this pre-screening does not constitute a firm guarantee to obtain credit or insurance.³⁸

In exchange to these provisions, the banking industry has to add a statement to the unsolicited offers, that the consumer has the right to opt-out of future pre-screening processes by contacting a notification system established by the reporting agency that provided the pre-screening service. On the other hand, the bank is allowed to post-screen an applicant by obtaining a credit bureau report or by reviewing the information on his or her response form.³⁹

Whereas the FCRA of 1970 principally attributed the interpretation of regulations to the FTC, the new act also grants specific authority to the FRB. The FRB is the agency that publishes FCRA interpretations for all federally insured financial institutions and their affiliates.

3.1.2.3 Financial Services Modernization Act of 1999

In recognizing the significant technological changes within the financial services industries, President Clinton pledged that he will not allow “new opportunities to erode old and fundamental rights.” (Office of the Press Secretary 2000, p. 1) In addition, the president emphasized that financial and medical information should

³⁸This broadens the legal term „firm offer of credit.“ The offering party might have pre-specified criteria of potential customers, but is not obliged to actually serve them.

³⁹FCRA also clarified the role of resellers of consumer reports. Section 607 (e) requires any person that plans to resell consumer reports to disclose the identity of the end-user and the intended (permissible) purposes of the transaction. This information has to be disclosed to the bureau that provided the profile. The reseller also had to obtain a certification of the end-user for each purpose for which the report will be used.

receive special protection. This pledge was codified in the Financial Services Modernization Act of 1999 (Gramm-Leach-Bliley Act, GLBA). Title V of the act imposes privacy regulations on financial institutions.⁴⁰ The act is the first that explicitly regulates information flows (or information sharing) among financial institutions and non-affiliated third parties.

The purpose stated in the law is to require financial institutions to provide notice (N) to customers about their privacy policies and practices. Furthermore, the act describes the conditions under which financial institutions may disclose personal information about consumers to non-affiliated third parties and grants the customer the opportunity to opt-out. It is important to note that Congress did not intend to revise the FCRA by approving the GLBA. Instead, the FCRA regulates information sharing among affiliates and with credit bureaus, while the GLBA emphasizes the regulation of sharing arrangements of financial institutions with all non-affiliates.

Again, we review the major provisions according to the parties involved in the information transaction, our emphasize will again be placed to the banking industry as information furnisher and credit report user.

Figure 7: Financial Services Modernization Act of 1999

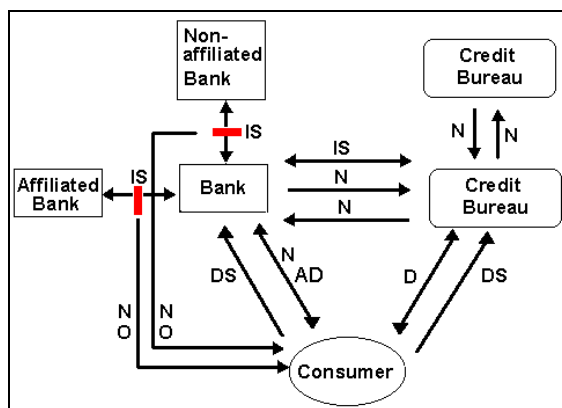


Figure 7 represents the newly regulated information flows. There are several major provisions that banks have to observe in their information transactions under the GLBA. First, they have to establish and disclose a privacy policy. The official statement has to be “clear, accurate and conspicuous” (Federal Reserve Board et al. 2000, p. 1) and it has to explain practices of information sharing with non-affiliated third parties *and* with affiliated parties. The disclosure has to be made at the

⁴⁰ „Financial institution“ refers to all entities engaged in “financial activities” as lending, exchanging and investing money, but also insuring and providing advisory services (FTC 2000a, p. 33647, footnote 7).

beginning of a customer relationship and afterwards annually during the continuation of the relationship.

Second, the customer must be provided with an opt-out opportunity. This time, the consumer also has the right to block data streams to affiliates as well as to non-affiliates. This is because sensitive financial information may not be shared with unrelated third persons unless the institution has provided notice and opt-out and the consumer has not used the latter (Federal Reserve Board 2001c, p. 386).⁴¹

The set of affiliate sharing regulations and regulations in second and further information transactions generate a more complex pattern. Information received by the bank from other financial institutions or from a credit bureau may be revealed to the affiliates of the credit bureau or of the own corporate family members. If these members intend to provide the information to another third party, they can do so only to the extent the first user is allowed (FTC 2001c, p. 387).⁴²

This also holds in the case of information sharing with a non-affiliate. If a bank discloses information to a non-affiliate, that party may in turn only disclose the information (to other third parties) if the disclosure would have been lawful to the bank in the first place (GLBA, 15 U.S.C. Sect. 6802 [c], FTC 2000a, p. 33366). Thus, the receiving party “steps into the shoes” (FTC 2000a, p. 33367) of the financial institution that made the initial disclosure. This is intended to provide a consistency of privacy policies across institutions despite different privacy rules. If the third party would not comply to disclosure rules of the bank, this would not be in accordance with the notice originally given to the consumer and, therefore, it would not be lawful. How complex this regulatory scheme is might be exemplified by a warning of the functional regulators in a joint address to financial institutions:

“Note that disclosure of certain information, such as assets, income, and information from a consumer reporting agency, may give rise to obligations under the Fair Credit Reporting Act, such as a requirement to permit a consumer to opt out of disclosures to affiliates or designation as a consumer reporting agency if disclosures are made to non-affiliated third parties.” (U.S. Department of the Treasury 2000, p. 2)

The activities of credit bureaus constitute a major exception from the GLBA provisions. This approach has been explained by the FTC as a permission that allows

⁴¹ There are, however, a number of important exceptions to this provision that emphasize information flows for secondary or further uses. In their context, the institution only has to provide *notice* but *not* the right to opt-out. Private information can be shared with a non-affiliate that performs services for the bank or has a joint marketing agreement with it, i.e. if both offer jointly credit products for example.

⁴² We have not visualized this fact in the figure.

the continuation of the credit reporting business in general (FTC 2000a, p. 33668). Since all information that banks transfer to credit bureaus is considered to be non-public personal information, the act also had to acknowledge credit bureaus and exclude them from the legislation.

In sharing with non-affiliates, both notice and opt-out must *not* be provided in the context of the general exemptions in GLBA, 15 U.S.C. Sect. 6802 (e)6(A) of the act, that is if the information is disclosed to a credit reporting agency.⁴³ This is also the case if information is disclosed by the bank that is originally *inferred* from a consumer report. “A customer has *no right* to prohibit those disclosures or even to *know more* than that the disclosures are being made ‘as permitted by law’.” (FTC 2000a, p. 33667, emphasis added)⁴⁴ In the “ordinary course of business” (FTC 2001, p. 13), credit bureaus are, in turn, allowed to re-disclose sensitive data in the form of credit reports to all parties that have an permissible purpose to obtain them.

According to the re-use and re-disclosure provisions (under the credit reporting exception), credit bureaus as third parties are allowed to disclose information to their members (clients), affiliates and to the affiliates of the financial institution that initially provided the information. As in the past, account numbers for credit cards, deposits or transactions accounts may further be shared with credit bureaus. Again, this is a statutory exception from the general rule that this kind of data are prohibited to be shared with telemarketers, direct mail services or other non-affiliates engaged in marketing.

Whereas the FCRA only mandated the power of interpretation of these statutes, the GLBA amends the FCRA in vesting the rulemaking authority in several functional regulators, that is the FTC, FRB, OCC and the SEC. Within this structure of competencies, the FTC has the regulatory authority over all financial institutions that are not regulated by the other agencies. The GLBA also obligates the agencies to consult with one another to develop consistent policy rules. However, a regulation drift between different subsidiaries of banks might be induced by the issuance of different regulations by these authorities for banks, insurance or other corporate

⁴³Still, this disclosure has to occur in accordance with the FCRA. Other exemptions include the necessity to administer the transaction with the consumer, to service or process the product or to maintain the account of the consumer.

⁴⁴Actually, the functional regulators proposed several sample statements for privacy notifications (Department of the Treasury et al. 2000, p. 2). Interestingly, they proposed to disclose the fact that information is collected from reports, but they do not explicitly mention the bureaus in the category to whom the information is disclosed (here, the general term “as permitted by law” is proposed).

subsidiaries. In the past, the FTC, FRB, OCC and FDIC⁴⁵ already emphasized three main requirements (disclosure, annual notices and opt-out options) that they interpret to be identical in all substantive respects (Federal Reserve Board et al. 2000; FTC 2000b).

In summary, the FCRA provided the background of the new regulatory measures introduced in the 1990s. It established permissible purposes of credit information disclosure, thereby ensuring the information flow among the involved market participants. It also introduced dispute settlement and correction procedures that were intended to increase the quality of information flows. And, finally, it assigned lifecycles to derogatory and bankruptcy information. In this sense, the information sharing arrangements that already had evolved endogenously in the U.S. economy were codified.

Since the act left information sharing arrangements largely unaffected, one may, in this case, observe path-dependency. A modification of information flows would have caused serious disruption and costs for consumer credit market participants since this market largely depends on such flows.

There were several other information transactions that were left unregulated, namely the information flows from data providers to credit bureaus and the sharing arrangements among affiliates and non-affiliates of credit report users. This situation provided the initial conditions for the reforms in the 1990s.

“Information remedies are most likely to be the most effective solution to information problems. They deal with the cause of the problem, rather than its symptoms, and leave the market maximum flexibility.” (Beales et al. 1981, p. 413) This was publicly acknowledged by FTC members at the beginning of the 1980s. The agency also realized natural monopoly and free-rider problems in information markets and hinted at informational market power problems, but only referring to product markets. Beales et al. (1981) state that there are several information remedies that can be introduced when informational problems are faced by market participants: the removal of information restraints, the ensuring of truthful and complete information and measures that affect disclosures. Especially in the case of the latter, the authors claim that disclosures “tend to increase the cost of communication.” (Beales et al. 1981, p. 413)

⁴⁵Federal Deposit Insurance Corporation (FDIC).

It seems like these principles (actually formulated in the context of advertising) have also been applied in parts to other information problems. Disclosure rules as well as informational remedies can also be found in the later amendments to the FCRA.

The CCRRA introduced a new information network in requiring a notification system among credit bureaus. For the first time it also introduced certain duties for information providers. It mandated an information flow to credit bureaus in the case of inaccuracy correction as well as a reciprocal flow from the bureaus to the furnishers for the same reason. The act also facilitated an increase in the information flows among affiliates of the same corporate family. It can be ascertained that this increase in required information flows was intended to further increase the quality of the information. The GLBA completed the picture in regulating the information flows among report users and non-affiliates. While these flows in some cases can be interrupted anytime by consumers (through opt-out), the information network with credit bureaus has been firmly secured by granting general examples.

The more strict regulation only appears in quality-improving dispute settlement procedures and in the disclosure requirements. The incentives have been aligned in the sense that the major burden of quality checking is now vested in the consumer. In essence, the performance of the system critically depend on the consumer's commitment to information verification. In addition, the laws provide enhanced transparency that will reduce the costs of correction. Taken together, these developments can certainly be interpreted as a stricter privacy regulation in the American context, notwithstanding, in the European context they might still be seen as only partially increasing privacy.

It is an irony that "several problems with privacy arise because of the lack of information available between concerned parties." (Varian 1996, p. 5) Therefore, we witness an *increase* in information flows due to *tighter* regulation, because data has to be checked, verified, corrected or amended with dispute notices. In this sense, the information flows have been strengthened and increased qua regulatory rules.

3.2 Financial Privacy Regulation and Information Sharing in Europe

3.2.1 Information Sharing Arrangements in European Credit Markets

The earliest private credit bureaus were established in Europe at about the same time as in the U.S. In Austria, a bureau was founded in the 1860s, followed by Sweden in the 1890s (Pagano and Jappelli 2000, p. 19, 29 – 30). However, where banks competed in a national market, credit reporting agencies developed later and on a smaller scale. In Europe, most private credit bureaus were founded in the 1960s and 1980s.

The European system of credit information sharing is also characterized by public credit registers that are mainly operated by national central banks. These registers are mandatory reporting systems that operate like credit bureaus, but *all* financial institutions under the supervision of the central bank have to report to it. Most of the public credit bureaus have been set up in the second half of the 20th century. These systems set a reporting threshold on loans that varies from country to country and from a several hundred dollars to over one million dollars (for a detailed survey see Pagano and Jappelli 2000a, p. 30). Especially the high thresholds cut off data on household loans. Other institutions that collect and distribute credit information are private credit reporting agencies and business reporting agencies.

The operations of private credit bureaus in Europe range from an exchange of massive amounts of positive and negative data (United Kingdom, Germany, Sweden, Switzerland) to exchange on a medium scale (Finland, Netherlands); and, finally, to only rudimentary exchange in its infancy (Portugal, Greece, Turkey). In France private credit bureaus are virtually non-existent due to strict privacy regulations (Pagano and Jappelli 2000a, p. 10, 17). As their American counterparts, the European bureaus started to employ IT as well in the 1970s. However, the industrial structure of the credit information markets differ remarkably in European countries. Germany, Denmark and Austria are dominated by one major credit bureau, United Kingdom's market is a duopoly and in Italy's market is characterized by more competitors.

It is important to acknowledge that the European credit reporting business has focused on national markets until the beginning of the 1990s. This, however, changes rapidly. In Europe, the industry experiences the intensification of competition. This is related to the market entries of the “Big Three,” Experian has bought or cooperates with a number of agencies in Germany, Belgium, Spain, United Kingdom or Monaco. Trans Union competes in the Italian market and Equifax in the markets of Spain and Portugal. Despite this competitive surrounding, the same concentration processes will

be observable just as in the U.S. market. Pagano and Jappelli (2000a, p. 19) expect a continental credit reporting system within the next five to ten years with two or three large credit bureaus that operate on the European level.

In Europe the population coverage rates of private credit bureaus differ from about 100% in the United Kingdom and Belgium to 78.6% (Ireland) to 62% (Germany) and, remarkably, to virtually no coverage in France (Pagano and Jappelli 2000a, p. 29). This can be attributed to the different information regulation regimes as well as the existence of public credit registers.⁴⁶

Some European nations assign significant human rights elements to privacy (Germany, France, Nordic countries), other systems, such as that of the UK, are primarily engaged in granting minimum standards as required by the Convention of 1981 (Charlesworth 2000, p. 256). Greece and Italy, on the other hand, had no privacy laws in place at all, when the European Data Protection Directive⁴⁷ was introduced. We have already mentioned how credit reporting agencies compete in different dimensions (price, data quality, coverage rates and scoring services). This will lead to a higher coverage of population in the European credit markets that in turn may reveal considerable downstream effects on the credit granting industry.

In summary, there will be the tendency to an oligopolistic market structure in Europe and to transnational reporting schemes on one hand. On the other, the coverage rates will increase. If scoring services are also a competitive advantage, we may also observe a tendency to more detailed credit profiles.⁴⁸

In the following The paper briefly summarize the convergence processes by referring to France, Germany and United Kingdom. The next section explains the European Data Directive for the Internal Market.

⁴⁶There are diverging views on the point of whether private or public credit bureaus are substitutes or complements. Jappelli and Pagano (1999, p. 4) view them as substitutes, while Miller (2000, p. 27) sees them as complements.

⁴⁷The full title is: Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data. This paper uses the short forms "Directive," "Directive 95/46/EC" or Data Protection Directive.

⁴⁸The FICO Score uses about 350 variables, whereas the German Bundes-Schufa only uses about 50 variables for its scores.

3.2.2 Regulatory Patterns in Europe

Since the 1970s, nearly every European Country has passed legislation that protects the right to privacy in the context of data collection, distribution and storage. The development of these laws occurred in the context of international standard setting by the United Nations (UN),⁴⁹ the Organisation for Economic Cooperation and Development (OECD)⁵⁰ and the Council of Europe.⁵¹ Most of the basic principles and guidelines developed by these bodies can be found in all data protection laws in Europe. These rights can be summarized as (1) right to notice before collection takes place; (2) right of access to the data; (3) the right to have the data corrected; and (4) right to object to certain data processing methods. Cate (1997, p. 32) identified different similarities of these laws: in most cases they apply to the public and private sectors at the same time as well as to a wide range of activities reaching from data collection to their dissemination. In addition, the laws typically have few sectoral limitations.

Although these are the primary aspects, national privacy laws still have been different in several respects due to different national approaches in privacy conceptualisation as already noted above. This situation created barriers to the free flow of information, generated non-transparency and implied regulatory drifts. At the beginning of the 1990s, the European Commission started to view this as a serious impediment to the development of a single Internal Market. Only lately it repeated its position once more, this time in the context of financial information flows: “The improvement of information to the credit grantor is thus an essential condition for the creation of the internal consumer credit market, without which the consumer will find it very difficult to obtain credit in another Member State.”(European Commission 2001, p. 11). Since the national regulation regimes are converging in the process of harmonization, the following description includes the progress on the implementation of the EU Directive 95/46/EC. An overview of different privacy provisions is presented in **table 3** in the appendix.

⁴⁹Universal Declaration of Human Rights (1948), Convention for the Protection of Human Rights and Fundamental Freedoms (1950).

⁵⁰Guidelines on the Protection of Privacy and Transborder Flows of Personal Data (1980).

⁵¹Council of Europe Convention (Treaty 108, 1981).

3.2.2.1 Harmonization: The Data Protection Directive of 1995

In beginning of 1992, when the discussion about data protection in Europe intensified, only ten of 18 countries had ratified the 1981 Council of Europe Convention for the protection of personal data. By 1997, all fifteen EU Member States (except Greece) had privacy legislature consistent with the Convention (Cate 1997, p. 35). Due the different regulatory approaches in the countries and the possibility to interpret the Convention in a national context, privacy legislature has not been uniform, as already mentioned. This situation created potential obstacles to the free flow of information and additional burdens for transnational businesses, such as the need to register with a supervisory authority in several Member States for authorised data processing and to comply with different standards in the EU states.

In 1990, the Commission of the European Community issued the first draft of a Directive that was intended to prevent national inconsistencies within the EU that could also be used to erect protectionist barriers or distort competition. During the lengthy debate about the draft, members of the European Union were far from agreeing on one single approach towards a supranational Directive. While the UK considered the regulations to be too strict compared to their own statutes, Germany, on the other hand, criticized that its high protection standards might be reduced by the European legislation (Lloyd 1996). Moreover, UK, the Netherlands, Ireland and Denmark put forth that a ratification of the European Council Convention would be sufficient (Charlesworth 2000, p. 256).

Concerning the scope of legislation, Directives by the EU Commission only apply to specific problems in the competence of the Union.⁵² One of the most important tasks is the establishment of the Single Market and its four freedoms.⁵³ In the past, the Commission's competencies have been successively expanded and it received a greater scope for regulating consumer protection issues (codified in the Treaty of Amsterdam of 1996, Art. 153, effective in 1997).

In general, the free flow of information is part of the Single Market agenda. The Commission pursued to minimize differences in national legislatures: "The right to privacy of citizens will therefore have equivalent protection across the Union." (European Commission 1998) Despite the differences in the nations, a compromise on this issue was eventually reached in the Council of Ministers in 1995, therefore in

⁵²Exceptions to the coverage of the Directive are areas such as security, defence or criminal law which lie outside of the EU Commission's competences.

⁵³Unimpeded movement of people, trade, services and capital.

October of the same year, the Directive could be adopted. The Member States were required to put their national legislature in line with the Directive by 24th October 1998. This process took longer than expected. By 2001, most of the countries have finished the implementation process,⁵⁴ while others are in the middle of the legislative process (Germany, Ireland, Luxemburg) and one country (France) is still discussing the draft. In summary, most of the states have adopted the Directive, while for the other states it will at least take time until 2002.

Member states have different obligations, for example to ensure that personal information is processed fairly, lawfully and only collected for specified, explicit and legitimate purposes. Furthermore, data processing is required to be not excessive. In addition, each Member State is required to ensure accuracy of the data by providing access and rectification rights. Another rule states that data has to be kept in a form “which permits identification of data subjects for no longer than is necessary for the purposes for which the data were collected.” (Directive 95/46/EC, Art. 6, 1. [e])

The Directive establishes the qualitative framework within which the national states determine the precise conditions.⁵⁵ At the same time, the Directive only provides the minimum requirements that have to be implemented by the EU members.

In the following, we review the obligations of the Data Protection Directive according to the market participants rights and responsibilities and those of the member states.

The Directive applies to any operation of personal data that is performed with automated means. These operations include collection, storage, processing and disclosure of personal data (Directive 95/46/EC, Art. 2 [b]).⁵⁶ It also applies to data that are part of a non-automated 'filing system' in which data are accessible according to specific criteria (for example if data are alphabetically ordered). The Directive defines “personal data” broadly as “any information relating to an identified or identifiable natural person ('data subject'),” (Directive 95/46/EC, Art. 2 [a]) The rule clearly applies to credit reports and creditworthiness information in general.

The Directive imposes several obligations on the data controller (that is the natural or legal person or body that determines the purposes and means of data processing),

⁵⁴Belgium, Denmark, Spain, Greece, Italy, Netherlands, Austria, Portugal, Sweden, Finland, UK

⁵⁵This holds for example for conditions of lawful data processing (Directive 95/46/EC, Art. 5).

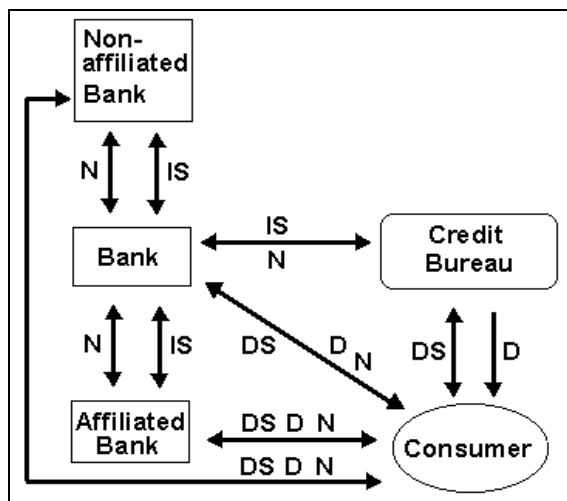
⁵⁶The following articles are quoted from the official version of the Directive as published in the Official Journal (1995).

exempted are persons that process data purely for household reasons. The data controller (in our case the credit bureau or bank) has to comply with the laws of the Member State, in which the business is established, even if it collects data of persons in other states. Controllers that are located outside of the Community are required to appoint a representative in the Community.

Apart from the criteria above, there are several preconditions that have to be fulfilled to make data processing legitimate. The most important features (in the context of the paper) are described below.

Art. 7 (a) states that (1) the data subject must *unambiguously* give her *consent* to data processing or that (2) the processing is necessary for the performance of a contract concluded in the interest of the data subject. Processing might also be lawful in the context of (3) public interests or (4) vital interest of the data subject. And, (5) data can be processed whenever the controller or a third party has a legitimate interest in doing so and this interest is not overridden by the interest of protecting the right to privacy of the data subject. The Commission explains this as follows: “This provision basically establishes the need to strike a reasonable balance in practice between the business interest of the data controllers and the need for privacy of data subjects.” (EU Commission 1998) How this balance will ultimately be determined is left to the decision of courts.

Figure 8: EU Data Protection Directive of 1995



The rules establish that controllers must disclose (D) certain information to the data subject, that is the identity of the data processor and the purpose of the data collection. In addition, the consumer has the right to be informed about any recipients

of the information and the existence of the rights to access and rectification. As stated by the Commission: “Data subjects must receive this information both if the data are obtained from them or if they are obtained from third parties. Derogations may apply in the latter case, when the giving of this information proves impossible or might involve a disproportionate effort.” (EU Commission 1998)

The Directive strictly limits secondary uses of data, it states that information may only be processed for legitimate purposes and not further in a way incompatible with those purposes (Directive 95/46/EC, Art. 6, 1.[b]) It depends crucially on the interpretation of what is meant by “incompatibility,” in the case of further processing activities.

Processing of a specific kind of data is prohibited: data revealing racial or ethnic origin or political, religious and philosophical beliefs or trade-union membership is prohibited as well as processing of data that reveals health or sex life (Directive 95/46/EC, Art. 8, 1.).⁵⁷ Data about criminal convictions must be processed under the control of an official authority or a private body, but in the latter case only if the national law grants specific security provisions.

There are also provisions of confidentiality and security of data processing (Art. 16, 17) and notification duties on the side of the data controller. In the European context, “notification” relates to the notification of supervisory authorities, not of the subject as discussed in the U.S. legislature (not shown in the figure). The Directive obligates Member States to provide a public authority with investigative powers and the right to intervene in unlawful practices (Art. 28). This authority has to be notified before automatic processing operations are carried out.⁵⁸ The notification has to contain detailed information about processing purposes or an intended transfer to third countries. Art. 21 explicitly states that the processing operations have to be publicized and that Member States shall provide a register of these methods: “The register may be inspected by any person.” (Directive 95/46/EC, Art. 21, 2.).

Data subjects, on the other hand, do have the specific right to access the information of controllers, denoted with D in the figure.⁵⁹ Apart from the aforementioned disclosure rules, the right to access “(...) means that anyone is entitled to approach

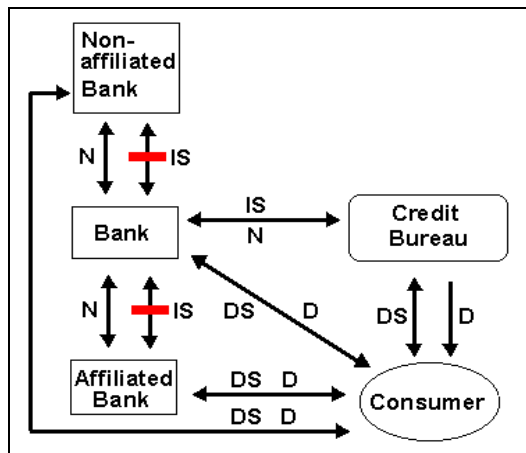
⁵⁷Exemptions are, among other cases, the explicit consent by the data subject or his or her vital interests. Derogations are also possible if the data is processed by an organization like a church, political party or trade union. Member states are allowed to expand this list of exemptions.

⁵⁸There are again a number of exemptions, for example if the intend is to provide a register with information for the public (Directive 95/46/EC, Art. 18, 3.).

⁵⁹ Access rights are limited in some cases, for example if national security interests are evoked.

any data controller to know whether he processes personal data relating to him or her, to receive a copy of the data, and if need be, to ask for the correction or erasure of the data.” (EU Commission 1998). The disclosure has to occur “without excessive delay or expense.” (Directive 95/46/EC, Art. 12 [a]) In the case of automated decisions (as credit scoring), also the method involved in the automatic processing has to be disclosed.

Figure 9: Blocking Rights of Individuals



The person concerned is guaranteed the right to block or rectify data if they are incomplete or inaccurate, this means consumers have dispute settlement rights (DS). Akin to the new U.S. legislation in the 1990s, third parties that previously received the incorrect information have to be notified (N) by the processor of any data blocking, rectification or erasure.

A second important right assigned to consumers is the right to object. At a minimum, the states are obligated to grant a person the right to object to data processing if the processing is carried out in the exercise of official authority or if the processing is necessary for the purpose of the legitimate interest pursued by the controller. This right can be exercised at any time if it is based on legitimate reasons. The subject also has the right to object if the data is used for direct marketing purposes (Directive 95/46/EC, Art. 14 [b]).

A fundamental innovation is the right of any person not to be subject to an individual decision based solely upon automated processing if the decision significantly affects him or her. This is the case in credit decisions or insurance granting. The legislators clearly related to automatic decision support systems like credit scoring, since it is based on the evaluation of certain characteristics as

exemplified by the statute.⁶⁰ The sole basis of automated processing is allowed in the course of entering or performing a contract: “In this case the data controller must adopt suitable safeguards such as giving the possibility to the data subject to express his or her point of view if his or her requests are not satisfied.” (EU Commission 1998). Finally, Art. 22 and Art. 23 provide rights to judicial remedies and compensation. Member States are allowed to specify the sanctions that are to be imposed in the case of infringements of the provision.

3.2.2.2 Convergence in EU Member States

In the following paragraphs we will briefly summarize the status quo of privacy convergence in three European states, that is United Kingdom, France and Germany.

United Kingdom

In the UK, there are mainly three laws that govern financial data protection, the Consumer Credit Act (1974), and the Data Protection Act (1984) and the Data Protection Act of 1998 that went into effect in March 2000. The Data Protection Act of 1998 transposes the Directive 95/46/EC by providing new regulations of the processing of information relating to individuals, including the notice of purpose of the data collection as well as the types of data that are collected (Data Protection Act of 1998, chap. 29, part II., 7 (1) a, b). This act is considered to be the new core of privacy legislation in the UK (EU Data Protection Working Party 1999, p. 8). In her first Annual Report, the UK Data Protection Commissioner reported that the nation's major credit reference company advertises availability of predictive consumer information covering 44 million adults, selectable by over 6,000 criteria. In the UK, the individual is entitled to write for a copy of the report (Pagano and Jappelli 2000a, p. 43). The act of 1998 also provides “principles of good practice,” data have to be processed fairly and lawfully and for only limited purposes. In the case of inaccuracy, the controller of this data can be mandated to rectify, block, erase or destroy those data (Data Protection Act of 1998, chap. 29, part II., 14 [1]). This is very much in line with the new European Directive. As Pagano and Jappelli (2000a, p. 43) note, prior to the Directive the situation in the UK resembled that of the U.S. in the way that no prior consent to data processing was required. The European privacy legislation may be therefore characterized as enhancing the protection of the consumer in the UK.

⁶⁰ Exemptions are made in the case of entering into a contract (or performance of it) lodged by the individual.

France

France has one of the strictest privacy regulations in Europe, based on the 1978 Act on Data Processing, Data Files and Individual Liberties. This act created the National Commission for Data Processing and Licensing (Commission National de l'Informatique et des Libertés, CNIL), an independent agency that performs advisory and monitoring functions. Companies that process personal information are expected to register with CNIL, the agency also has the power to deny the allowance of data processing (Litan and Swire 1998, p. 23). The act also provides access rights for individuals and grants rectification rights. In addition, a data subject may interrogate the transferral of data by any institution that maintains files on the subject. Moreover, the individual has to receive a notification *every time* his or her name appears in a database (Pagano and Jappelli 2000a, p. 42).

French consumers have to provide a written consent before a credit report can be issued. In June 2000, the French government still discussed the drafts that transpose Directive 95/46/EC (EU Data Protection Working Party 2001, p. 8). This is an immense delay, since in June 2000 the French government only started to inform CNIL about the preliminary draft of the law that is intended to implement the Directive. Before it is adopted, it also has to be presented to the parliament. “This draft law should simplify the system for notifying the supervisory authority in advance of processing, while at the same time increasing its ex-post powers.” (EU Data Protection Working Party 2001, p. 8).

Germany

In 1990, the German Government adopted the Federal Data Protection Act (Bundesdatenschutzgesetz) that was amended in 1994. The transposition of the EU Directive implementation followed two steps: the first was intended to implement the essential adjustments, while the second was to establish a comprehensive overhaul of the data protection laws (EU Data Protection Working Party 1999, p. 6). In May 2001, the new Federal Data Protection Act of 2001 went into effect, marking the first step in the implementation of EU law. It applies to the public and private sector and represents the law that governs the activities of credit bureaus. In the aftermath of the act, six Germany states (Bundesländer) adopted new privacy protection laws.⁶¹

⁶¹Brandenburg, Baden-Württemberg, Bayern, Hessen, Nordrhein-Westfalen, Schleswig-Holstein.

In Germany, personal data can be used and processed only with written consent of the data subject. It is common business practice of credit granting institutions to include a clause in contracts that enables them to transfer positive data to a credit register. This is necessary, because in the case of creditworthiness information, the “legitimate interest” of the bank covers only the transfer of negative data.

The dominant company in Germany is the Schufa Holding AG. According to their business report of 2000, the company holds information about 55 million persons. In 2000, about 62.9 million credit reports were disclosed mainly via electronic means (Schufa Holding AG 2001). The individual is entitled to know the purpose of data collection and the review and correct the information (Gesetz zur Änderung des Bundesdatenschutzgesetzes, §§ 4 (a), 35).

In summary, these regulations mark the slow progress of implementation. As a consequence of the EU regulation, the privacy regimes in Europe may converge in some fields as described above. However, apart from the fundamental rules of access, disclosure and correction, national legislators still have some flexibility in adopting laws and publishing rules.

3.3 U.S.-EU Differences in Privacy Regulation: Conflicts and Compromises

This section summarizes the major differences in the data privacy approaches in the U.S. and the EU. In a second step, the differences especially in the field of credit information sharing will be reviewed.

In general, it can be stated that the major characteristics that distinguish the U.S. and EU approaches are deeply rooted in their cultural conceptualisation of privacy and personal information. Whereas the U.S. tend to view personal information as an economic information good, Europeans assign human rights aspects to personal privacy. This is explicitly expressed in the Data Protection Directive: “Member States shall protect the *fundamental rights and freedoms* of natural persons, and in particular their *right to privacy* with respect to the processing of personal data.” (Directive 95/46/EC, Art. 1, 1., emphasis added).

This justifies regulation, but it also has to be viewed against the historical background of fascist regimes in Europe, of surveillance and vast data collection by secret services (as more recently revealed again in the case of the former German Democratic Republic). In 2000, the EU Data Protection Working Party reaffirmed this point of view by stating that economic and commercial considerations cannot

override the fundamental rights of individuals regarding the processing of personal information (EU Data Protection Working Party 2000, p. 2).

In the context of constitutional philosophy, we also observe major differences. The U.S. Constitution mainly restrains the central government and civil rights provide protection against the government, *not* the private sector. European governments, on the other hand, are viewed as the guarantors of rights of their citizens with respect to the public and the private sector (Cate 1997, p. 44).

A second important difference is that American privacy regulations are based upon a sector-by-sector approach while EU Members prefer a comprehensive regulatory regime, that is applicable to both the public and private sector. Especially American scholars find the breadth and regulatory depth in the EU remarkable (Cate 1997, p. 41).

Supervisory authority in the United States is fragmented and competencies are shared among several institutions (see section 3.2.3). European states, on the contrary, assign centralized responsibilities and supervisory functions to one national data protection officer.

Concerning the financial privacy regulations in both regions, the differences have been summarized in **table 4** in the appendix. In comparing the functional similarities and differences of the regulation regimes, we can derive conclusions about the property rights regime in both countries. The wider the space of interrelated rights in information, the more the regime assigns the property rights to the individual.

We can observe the following patterns: both regions establish permissible purposes of data collection by either limiting disclosure (of credit reporting information as in the U.S.) or explicitly acknowledging specific purposes (as in the EU).

A customer in Europe has the right to approach every data controller to ask for disclosure (and possible correction). The U.S. started to grant such rights in the second half of the 1990s. In this context, disclosure rules are of utmost importance. Both regions grant consumers the right to review their information and to have it corrected. A first difference appears in the blocking rights of data subjects. In the U.S., these rights can be exerted in the case of dispute settlement and the transfer of incorrect data. In Europe, on the other hand, one observes more cases in which an individual could block information sharing.

Another, probably more important difference is the opt-in system in Europe (due to the necessary “*unambiguous consent*” by the data subject) versus the opt-out system

in the U.S. In the latter case it is taken as an agreement to the privacy policy of a company if consumer fails to explicitly exercise her option to opt-out. This can be characterized as constituting an assignment of rights to the individual at least to a greater extent than in the U.S.

It is important to know that the framing of opt-in or opt-out questions can influence the decision of consumers. Bellmann et al. (2001) show that if the purpose is to collect data to a great extent, then an opt-out system has to be chosen (inactivity then leads to an opt-in to data collection). This can increase participation rates enormously.

However, one should note that despite the opt-in system in Europe, it is common business practice to rely on an “implicit consent” by the consumer. This means that the consumer is rarely asked directly to opt-in, rather it is taken for granted that the individual agrees to data processing if he or she does not explicitly opt-out.

Concerning creditworthiness information it is common practice in Germany to get the unambiguous consent of the borrower for positive information. However, this should not blur the fact that a denial of data transfer to the credit bureau will result in a denial of credit. In other words: it is a “economic necessity” to opt-in the sharing of positive and negative information if the consumer wants to get credit.

Time limits on the processing of certain data categories are codified in both regimes, however, in Europe these limits are expressed in a more general way. In general, European credit bureaus have business practices that establish certain time limits also.

Secondary uses are more strictly regulated in Europe, since collected data can only be used for its specific purpose and in a strong sense only for compatible purposes. In the U.S., however, the consumer has to opt-out to prevent an information sharing with third parties. If a corporation wants to share credit report information with its affiliates, the consumer also has the opportunity to opt-out. While disclosure to affiliates and non-affiliates is regulated in the U.S., this separation can not be found in the European Data Directive.

A further fundamental difference is that the European regulations provide transparency in the logic of automatic processing of personal data and in establishing registers of data collectors.

These differences and the systemic interrelation of regulatory regimes via data import and data exports led to a privacy conflict among the U.S. and Europe in the second half of the 1990s. Strict privacy regulation in one region is weakened if the same set

of rules does not apply to a network participant in another country with liberal regulations. Especially information processors are able to relocate internationally and to migrate to a region with weaker privacy restrictions. The European Data Protection Directive acknowledges this problem in Art. 25 and 26. Both articles reveal strong extraterritoriality aspects. The articles state that the transfer of personal information to third countries is only legitimate if there is an “adequate level of protection” in the country (Directive 95/46/EC, Art. 25, 1.). This level of protection has to be assessed by the European Commission under consideration of all circumstances surrounding the data transfer, e.g. the nature of the data, the purposes and duration of data processing and general as well as sectoral laws. The consequence of inadequate data protection is (in the worst case) a total interruption of information flows: “Member States shall take the measures necessary to prevent any transfer of data of the same type to the third country in question.” (Directive 95/46/EC, Art. 25, 4.)

The Commission is obliged to enter into negotiations with the concerned country and it can conclude international agreements or bilateral understandings that ensure an adequate level of protection. This can be done by establishing safeguards when the protection by national laws in the concerned country is not sufficient. However, there are also general exemptions from Art. 25. Among these are: (1) if a consumer has given his or her consent to the transfer; (2) if the transfer is necessary for the performance of a contract between the data subject and the controller; (3) if the transfer is necessary for the conclusion of a contract; and, (4) if the transfer is legally required on important public interest grounds (Directive 95/46/EC, Art. 26, 1. [a] – [d]).⁶²

The conflict over privacy regulation between the Europe and the U.S. started with the implementation of the Directive and ended in March 2000, the Department of Commerce and the Directorate General XV of the European Commission reached a compromise.

We will not review the history or particular details of this conflict, since this has already been done by other authors (see Cate 1997, Charlesworth 2000, Kitchenman

⁶²There are more exemptions than those mentioned, that is if the transfer is of vital interest to the data subject or if the transfer is made from a register that is open to the public or to any person who demonstrates a legitimate interest. The latter case means that data comes directly from public records (U.S. Department of Commerce 1998).

2000a, Litan and Swire 1998, Mann 2000, Singleton 1999). We rather conclude this section by reviewing the latest developments.

The “safe harbor” principles negotiated between the U.S. and the EU are the framework of principles to which U.S. businesses voluntarily may adhere if they want to ensure that data flows from Europe continue. Businesses have to self-certify annually to the Department of Commerce in writing that they adhere to these principles, which include the rule of notice, choice (to opt-out), onward transfer to third parties, access, security, data integrity and enforcement (for details see U.S. Department of Commerce 2000, EU Data Protection Working Group 1999b, 2000).

After over two years of talks, several important issues still have not been resolved so far. In 1999, the EU Data Protection Working Group stated that the compliance with the FCRA and the GLBA does not automatically satisfy the “adequate protection” provision of Art. 25, instead the Working Group has to assess these laws first (EU Data Protection Working Group 1999b, p. 12).

In May 2000, the 15 governments of the Member States agreed with the Commission that the U.S. system was adequate. The European Parliament, however, decided otherwise, rejecting the March agreement on the “safe harbor” principles (Kitchenman 2000a, p. 127). The Parliament claimed that the safe harbor system was neither operational nor fully implemented in the U.S. Since the Parliament has no statutory authority to veto the deal, the Commission has to decide whether to ignore the Parliament or renegotiate the terms of the contract.

Financial services have not been included in the safe harbor principles at all, because of the on-going reforms due to the GBLA. Financial service providers may still self certify under the agreement, but this is not mandatory (De Bony 2000; Jones and Meller 2001, p. 12). As observed in January 2001, neither the U.S. banking industry has implemented safe harbor nor has the EU accepted the GLBA as constituting such a safe harbor (Murphy 2001). Article 26 (4) of the Directive allows the Commission to issue standard contractual clauses for businesses that intend to transfer data from EU to non-EU countries. However, in March the Bush administration asked the European Commission to delay the adoption of any standard contractual clauses. The concern is that U.S. financial services companies are forced to enter these contracts that would subject them to the jurisdiction of courts in the EU states (Bogino 2001).

In summary, an agreement on financial services is still pending, and the negotiations are complicated by the on-going reforms in the U.S. Moreover, the already achieved safe harbor agreement failed to receive approval by the European Parliament and the European Data Protection Officers. The U.S., on the other hand, claims that current privacy standards in the financial sector present adequate protection.

IV. Conclusion

This paper analyzed the formalization of privacy in credit market models and reviewed the implications of these models. The theoretical review showed that the current generation of information asymmetry models mainly focuses on borrower-lender relations that refer to firms as borrowers. There are only a few models that deal directly with personal privacy. The formalization of personal privacy as an information asymmetry problem is still in a very early stage. For future research, we conclude that models should incorporate assumptions about the underlying information property rights structure and the related revelation regime. These assumptions should be based on the regimes as described in this paper. Credit market models that do not acknowledge the current state of information sharing in those markets are not really advancing our understanding of the mechanisms of credit allocation.

We described the information sharing arrangements and industrial structure of the credit reporting industry in the U.S. and Europe. In both regimes, positive and negative information is currently shared. The market structure in the European markets still differs. The paper delivered no explanation why these markets differ, this question must be answered by further research. However, one can expect the development of an integrated European reporting system within the next few years. This system will evolve into an oligopoly just as that which already exists in the U.S. It can be stated that concentration in the market can reduce costs for regulators, since there are fewer regulatory targets that have to be monitored.

At the beginning of the paper we asked the question of how privacy is regulated and how this regulation influences information flows among market participants. It can be concluded that the U.S. legislation mandated more information flows among market participants due to stricter regulation.

It was assumed that Europe and the United States assign the same property rights in personal information to individuals. This assumption stands in contrast with the

widespread perception that the European Union established a stricter regulation. The author compared the regulatory regimes in both regions to assess their similarities and differences. This descriptive method was chosen to answer the question of property rights assignment in the context of personal information.

The analysis showed that it is possible to compare both regimes and to find a number of aspects that are similar. Both regimes grant access and correction rights as well as the right to mandate the erasure of incorrect data. In addition, Europeans may mandate data erasure in the case of unlawful data processing. Both regimes allow the blocking of data transmission in the case of a dispute settlement between the consumer and the data collector. Moreover, the U.S. legislation also specifies certain time periods for specific categories of information, whereas the European Union states that data should be erased after it is not needed anymore.

A major difference, it was stated, is the opt-in system in Europe and the opt-out system in the U.S. This difference led to the claim that the European Union tends to assign more property rights to the data subject as the U.S. In this sense, we have to reject our first hypothesis and the first part of the second hypothesis. If we review the direction of regulation in financial privacy in the U.S., we find a convergence of regimes in the second half of the 1990s.

We also ascertained that regulatory measures in both regions primarily preserved the information flows that had already developed endogenously in the consumer credit markets. This is due to the fact that the modification of these information flows causes costly interruptions in the credit business. Here, one can clearly observe the path-dependency of the regimes. In addition, one can also observe a tighter regulation in the U.S. This regulation implies quality-improving access and correction provisions. Similar rights were granted on a supranational level in Europe in 1995 when most Members already had comprehensive privacy laws. Despite the compromised character of the Data Protection Directive, national regimes will still differ in the foreseeable future, since the Directive only represents minimum standards and convergence progresses only slowly.

In the U.S., on the other hand, access and correction provisions have been expanded to information suppliers in the second half of the 1990s. In addition, the legislators also set time frames that have to be observed by credit bureaus and their information providers for certain types of information. The incentives have been aligned in the sense that the major burden of quality checking is now vested in the consumer. As noted, this system together with the notification in cases of inaccuracy mandated new

obligatory information flows in the credit market that were intended to improve the quality of credit data. As noted, we interpret this as a sign of convergence of the privacy regimes in the U.S. and Europe. It is still too early to interpret this as a “regulatory race,” which leads to stricter regulation due to the interdependency of international data flows. So far, it is not clear, if the U.S. principles will satisfy the “adequate level” standard for the European Commission. However, if one takes the chronological sequence of regulatory measures in both regions into account, it can be stated that the U.S. has converged towards EU standards.

In summary, it might be stated that neither the U.S. regime constitutes the extreme example of not granting any property rights to the consumer, nor is the EU the safe haven for data protection advocates. As noted, it is true that the European Union assigns more property rights to the individual. However, this conclusion alone, is not an interesting result. We have qualified this statement by referring to financial privacy as a special case. Here, actual arrangements and the business practice of banks have established a quasi obligatory opt-in situation in Europe. Property rights in creditworthiness information are thin and there are no substantial differences to the United States. In this case, one has to modify the H.1 hypothesis: Europeans assign more property rights to the individual via the opt-in system, but this assignment does not substantially differentiate it from the U.S., since banking lending practices do not allow the individual to decide whether or not to share his or her creditworthiness information. This is the status quo that has developed in Europe due to competitive pressures to reveal the real risk of a borrower and to reduce default rates accordingly.

A discussion of property rights can only claim to be comprehensive if it also provides an analysis of externalities and related problems that arise from thin property rights. The author has excluded externalities and related problems. The descriptive approach does not allow any normative conclusions concerning the optimal revelation regime. Moreover, the paper provided a primarily exogenous cultural explanation of regulatory approaches. It is up to future research to find the endogenous economic explanation, to assess the problems those regimes generate and to find the optimal revelation regime as well as the welfare-maximizing balance of information disclosure.⁶³

⁶³ These problems are part of the authors Ph.D. thesis and her future research.

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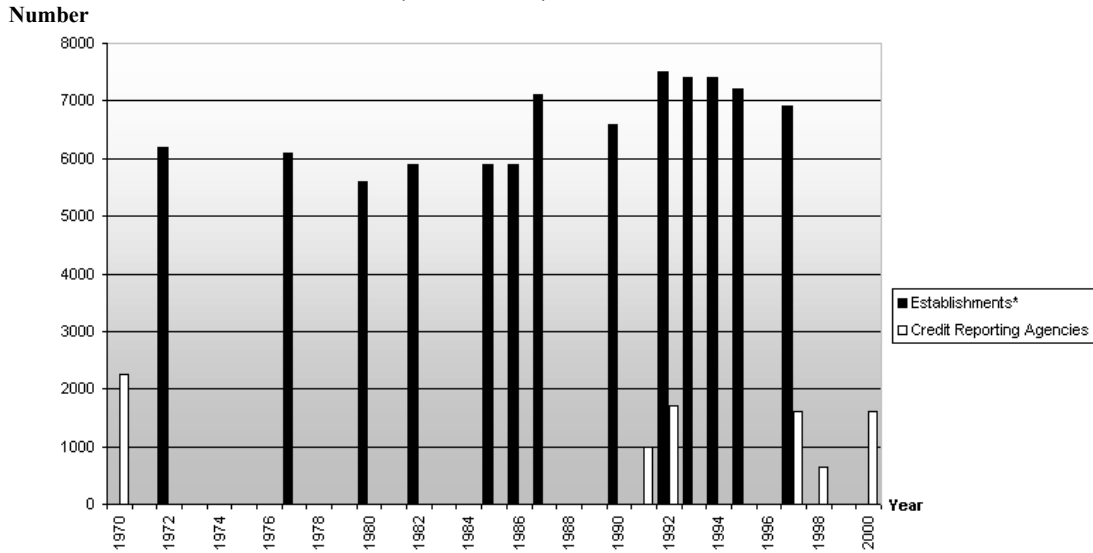
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Appendix

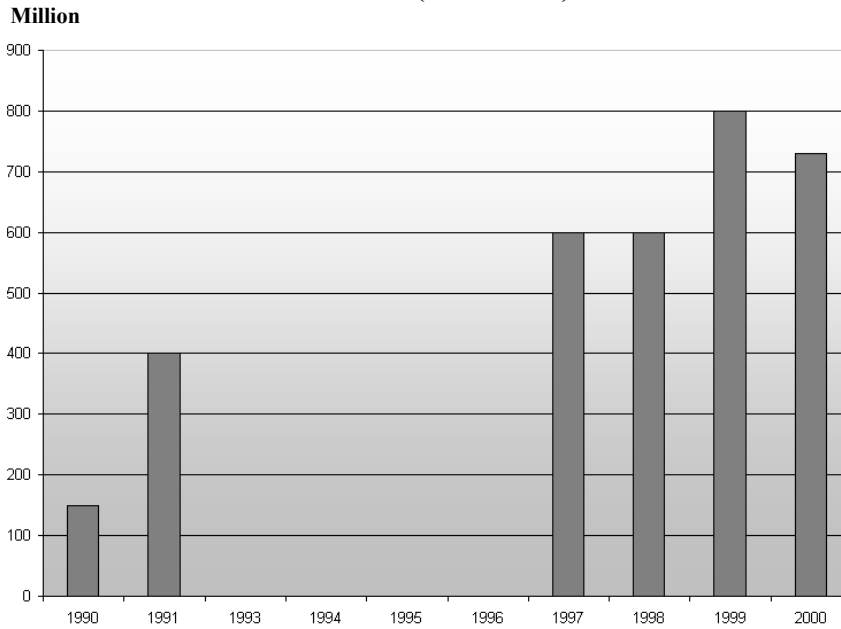
Figure 1. Credit Reporting and Collection Agencies in the U.S. (1970 – 2000)*



* Represents establishments with payroll (SIC 732). From 1987 on, numbers represent establishments in business at any time during year (before, establishments in business at the end of the year). Numbers are rounded to hundreds. Source: U.S. Census Bureau, Statistical Abstract of the United States, Series 1970 – 2000.

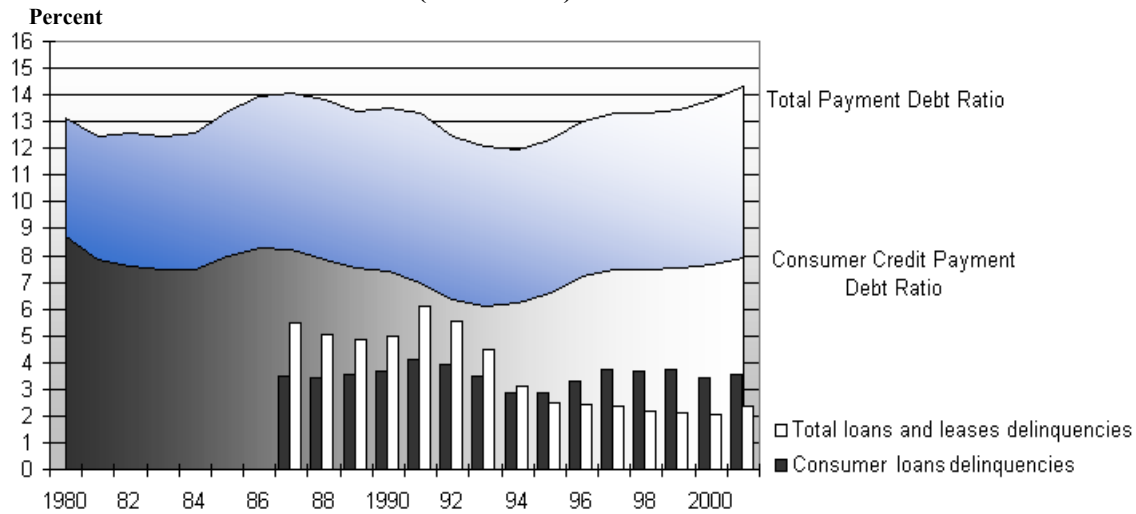
“Credit Reporting Agencies” refers to estimates from different sources. For 2000 from First Research (2001), for 1998 and 1970 from Bumpass (1998, p. 6), for 1992 and 1997 from the Economic Census (U.S. Census Bureau 1997, 2000) and for 1991 from Kurth (1991). The table will be expanded as soon as more data is collected by the author.

Figure 2. Credit Reports sold in the U.S. (annually) (1990 – 2000)*



* Represents estimates from different sources. For 1990 and 1997 from O’Harrow (1998), for 1991 from Consumer Reports (1991), for 1998 from Bumpass (1998), for 1999 from Kitchenman (1999), and for 2000 from Barron and Staten (2000). Numbers are rounded to hundreds.

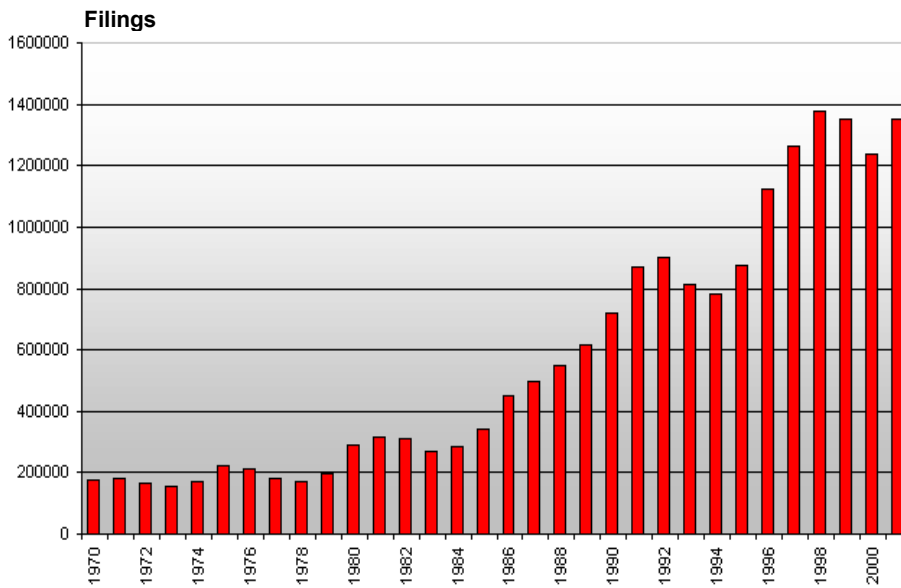
Figure 3. Household Debt-Service Burden and Potential Credit Risk in the U.S. (1980 – 2001)*



* The household debt-service burden is the (estimated) ratio of household debt payments to disposable income. “Total Payment Debt Ratio” includes all scheduled payments on mortgages, household loans, credit cards and other loans. “Consumer Credit Payments Debt Ratio” refers to payments on outstanding consumer debt. “Total loans and leases delinquencies” refers to rates of the 100 largest commercial banks (as calculated by the Federal Reserve Board). “Consumer loans delinquencies” refers to delinquency rates on consumer loans only. Data is taken from the first quarter of the prevailing year; seasonally adjusted.

Source: Federal Reserve Board (2001a, 2001b).

Figure 4. Consumer Bankruptcies in the U.S. (1970 – 2001)*



* The numbers represent consumer bankruptcy filings as compiled by the Administrative Office of the U.S. Courts. For the years 1970 – 1996 as cited in McKinley (1997). Numbers for 1997 – 2001 refer to non-business filings as compiled by the Administrative Office of the U.S. Courts (2001).

Table 1. Compilation of Federal Financial Privacy in the United States (1970 – 2000)*

Year	Legislation	Major Provisions
1970 – 1980		
1970	Fair Credit Reporting Act (FCRA) (P.L. 91-508; 15 U.S.C. § 1681)	<ul style="list-style-type: none"> • Disclosure requirements for credit bureaus and employers • Dispute settlement
1974	Equal Credit Opportunity Act (P.L. 93 – 495; 15 U.S.C. § 1691–1691e)	<ul style="list-style-type: none"> • Restrictions on discrimination on the basis of race, color, religion, national origin, sex, marital status or age
1976	Consumer Leasing Act (P.L. 94 – 240; 15 U.S.C. § 1601)	<ul style="list-style-type: none"> • Disclosure requirements for leasing companies for example concerning leased property and amount of payments.
1978	Right to Financial Privacy Act (P.L. 95 – 630; 12 U.S.C. chap. 34)	<ul style="list-style-type: none"> • Government agencies are prohibited to gain access to credit information unless there is a written permission by the customer or an administrative subpoena.
1978	Electronic Fund Transfer Act (P.L. 95 – 630; 15 U.S.C. chap. 41 § 1693)	<ul style="list-style-type: none"> • Amended by the Gramm-Leach-Bliley Act • Security and liability regulations applying to electronic funds transfers.
1980 – 1990		
1986	Electronic Communications Privacy Act (P.L. 99-508; 18 U.S.C. chap. 121)	<ul style="list-style-type: none"> • Regulates government interception of electronic communications
1990 – 2000		
1996	Consumer Credit Reporting Reform Act (P.L. 104-208; 15 U.S.C. §1681)	<ul style="list-style-type: none"> • Regulates dispute settlement procedures • Imposes new duties on information furnishers • Requires disclosure practices
1998	Identity Theft and Assumption Deterrence Act (P.L. 105 – 318; 18 U.S.C. § 1028)	<ul style="list-style-type: none"> • Amended by the Gramm-Leach-Bliley Act • Security and liability regulations applying to electronic funds transfers.
1998	Consumer Reporting Employment Clarification Act (P.L. 105-347; U.S.C. 15 U.S.C. 1681b)	<ul style="list-style-type: none"> • Amended the Fair Credit Reporting Act • Regulates the use of consumer reports for employment purposes
1999	Financial Services Modernization Act (Gramm-Leach-Bliley Act) (P.L. 106 – 102 ; 15 U.S.C. § 6801 et seq.)	<ul style="list-style-type: none"> • Regulates Sharing of Information among non-affiliates • Requires notice and opt-out possibility • Exempts credit bureaus from non-affiliate sharing

*The table only presents a selection of privacy laws.

Table 2. Reporting Intervals: Intertemporal Dimension of Credit Report Information

Information	Lifecycle	Legislation
Closed/paid accounts	10 years	Fair Credit Reporting Act (1970)
Bankruptcies*	10 years	Fair Credit Reporting Act (1970) Bankruptcy Code of 1978
Adverse Credit Information* (charge-offs, delinquencies, paid tax liens, judgments, arrests)	7 years	Fair Credit Reporting Act (1970)
Consumers Payment History	2 years	Business Practice
Inquiries (recipients of reports)	2 years 1 year	For employment purposes For any other purpose
Update of Credit Reports	30 days	Business Practice

* In some cases derogatory information is not limited to these time periods. Under the FCRA 1970 it is available to users in connection of credit extensions of \$50 000 and more; life insurance contracts of \$50 000 and more; and in connection with an application for a position with a salary in excess of \$20 000 (Maurer and Thomas 1997, footnote 63).

Table 3. Guidelines and Declarations of Privacy in the EU (1980 – 2000)*

Year	Organization**	Treaty, Guidelines and Declarations
1981	CE	Council of Europe Convention (Treaty 108/81): Convention for the Protection of Individuals with regard to Automatic Processing of Personal Data
1986	EC 87/102/EEC	Council Directive of 22 December 1986 for the approximation of the laws, regulations and administrative provisions of the Member States concerning consumer credit
1990	EC 90/88/EEC	Council Directive of 22 February 1990 amending Directive 87/102/EEC for the approximation of the laws, regulations and administrative provisions of the Member States concerning consumer credit
1992	EC	Treaty on the European Union (Art. F)
1995	EU 95/46/EC	Directive on the Protection of Individuals with Regard to the Processing of Personal Data and on the Free Movement of such Data
1997	EU 97/66/EC	Directive of the European Parliament and of the Council of 15 December 1997 concerning the processing of personal data and the protection of privacy in the telecommunications sector
1998	EU 98/7/EC	Directive of the European Parliament and of the Council of 16 February 1998 amending Directive 87/102/EEC for the approximation of the laws, regulations and administrative provisions of the Member States concerning consumer credit

*Abbreviations stand for: Council of Europe (CE); European Community (EC), European Union (EU).

**The table includes various Directives especially those on data protection, but also those relating to financial services and consumer protection and the telecommunication sector. We included them since they also provide regulations of financial data.

Table 4. Functional Comparison of U.S. and EU Financial Privacy Regimes

	US	Europe
Disclosure Purpose	Legitimate business interest	Legitimate business interest
Rights of the Data Subject	Access Correction Erasure of incorrect data Blocking in dispute settlements or if the data is incorrect Opt-out (opt-in until explicit denial of data use)	Access Correction Erasure of incorrect data and in the case of unlawful data processing or if the data is no longer needed Blocking in dispute settlements, if the data is incorrect, special need of the subject or data transmission for advertising purposes Opt-in (opt-out until explicit opt-in)
Time limits	Codified for certain data categories	In general no longer than necessary for the purpose of data collection
Secondary Use	Possible after notice and opt-out opportunity	Only for the original purpose of closely related purposes