

Banks, Herding and Regulation: a Review and Synthesis

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* The opinions expressed are my personal views and not necessarily reflect those of institutions I am affiliated with.

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Abstract

I review theory and empirical evidence on herd behaviour by banks. I consider both rational and behavioural aspects of herding and offer a simple taxonomy of effects that narrow banks decision scope to become funnel-shaped. I show that side effects of actor-based regulation and industry-specific banking aspects like arbitrage, inconsistent decision rules and procyclicality can become natural causes for herding. I consider remedies on the regulatory and banking side and discuss the impact of Basel I and Basel II on bank herding.

Key words: herd behaviour; behavioural finance; Basel II; regulatory arbitrage

JEL classification: D8, F3, G1, G3, G21, G28

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Banks, Herding and Regulation: a Review and Synthesis

1. Introduction

There is a growing interest in the literature on herding behaviour (Welsh, 2000; Hirshleifer & Teoh, 2003), contagion (Kodres & Pritsker, 2002; Kaminsky & Reinhardt, 2000), and bubble phenomena (Binswanger, 1999; Shiller, 2000) in financial markets. Usually those papers mainly deal with either the more “rational” herding (e.g. Bikhchandandi & Sharma, 2000) or the more “animal spirit” type, Lemming-like, bounded rationality version (e.g. Shiller, 2003), but rather neglect the interaction between both. Most of this literature is focused on capital markets (e.g. Chang, Cheng & Khorana, 2000), initial public offerings (Nelson, 2002), stock analysts (Hong & Kubik, 2004; Kim & Pantzalis, 2003), investment newsletters (Graham, 1999) and the like only, leaving banking issues rather aside. This paper tries to fill that gap.

In the banking literature, herding is often evoked as a cause of economic behaviour if other explanations fail: for banking crises (Reisen, 1999, Walter, 1999), bank runs (Samartín, 2003), credit crunches (Pecchenino, 1998), currency crises (Komulainen, 2001; Lam, 2002; Chari & Kehoe, 2003), foreign currency lending (Tzanninis, 2005), and with regard to the forthcoming major regulatory change, the Basel II Accord (Borio, Furfine & Lowe, 200; Rothensteiner, 2003). There also is a related stream of literature that concerns itself with issues in banking regulation, financial market efficiency and growth (Chami, Khan & Sharma, 2003; Bhattachary, Boot & Thakor, 1998; LaPorta, Lopez-de-Silanes, Shleifer & Vishny, 1998; Levine, 2002; Llewellyn, 2002; Matutes & Vives, 1998), however without taking herding effects into account.

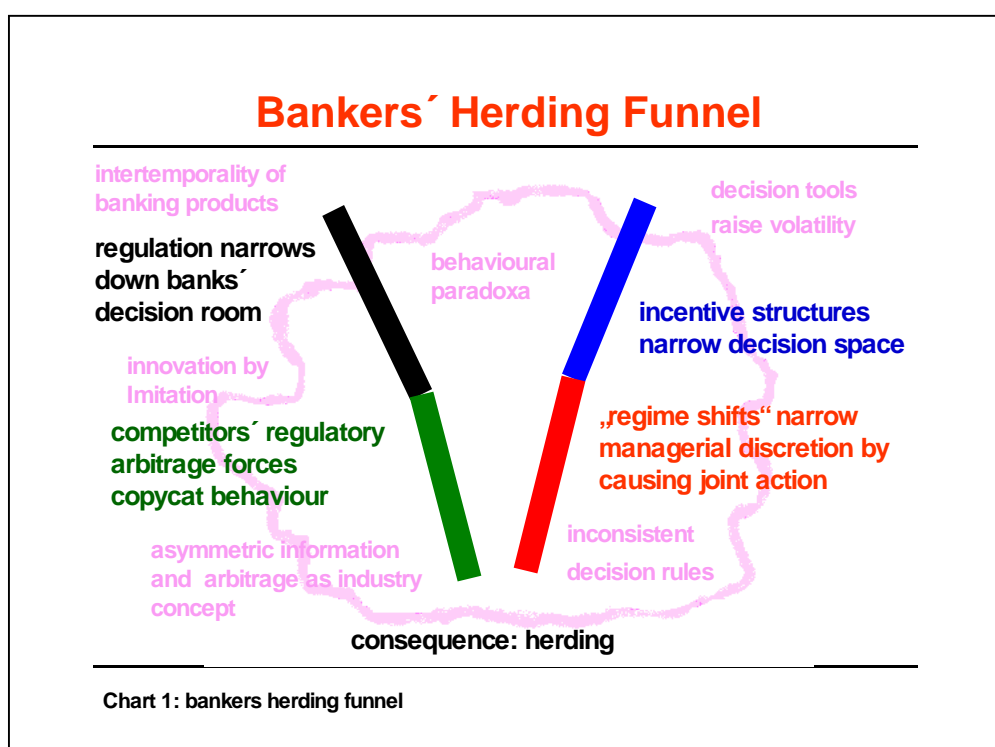
The goal of this paper is twofold. For one, to provide a more coherent overview of herding in financial services by integrating capital market and banking issues, and by establishing a crossover from rational to behavioural herding. This will add to the general understanding of financial services phenomena. For two, to show that regulation and the very industry-specific aspects of the banking sector can become natural causes for herding under

specific circumstances, and that herding as unintended macro-side effect should receive explicit treatment in regulatory changeovers. I apply the Kane (1980) framework of “regulatory dialectic” to explain the impact of regulation on the interaction between collective bank behaviour and the economy. The Basel II regulatory change provides a vivid example for a detailed discussion on pending issues in the trade off between regulation and the aggregate market cost of regulation. Bank herding itself is important as it may create or facilitate a number of potential problems, including exacerbating the business cycle, increasing systemic risk and misallocating lending resources. As a well-functioning financial sector plays a major role for the economy at large, herding is important to regulators, capital market participants, financial intermediaries, and others engaged in the financial sector architecture and beyond.

I find that a combination of certain regulatory and governance rules (like tight actor-based capital adequacy rules, putting banks at disadvantage versus other market participants), the embedded market micro structure of banks (for example information asymmetries and innovation by imitation), and environmental shifts (like the move from bank-driven to capital market-driven financial systems in Europe) may force banks into herding behaviour. Under such conditions the banks' “decision room” containing the remaining repertoire to act becomes funnel-shaped and the banks herd into the same direction. Regarding the relationship between bank herding and regulation, I argue that bank regulation should also include macroprudential considerations. For banks the conclusion is drawn that cutting out or suppressing the "conflict stage" in a banks' asset and liability decisions provides optimal breeding conditions for a combination of poor bank management, fraud and wrong client perceptions on the likelihood of intervention. As long as banks are sound and prudently managed, there is a certain pluralism in reaching credit and investment decisions. Banks therefore should build in conflict stages into the organisation. The Basle II intention of completely separating the tasks of credit and risk officers goes into this direction.

I argue in the following, that when pressure becomes too strong, banks just run the way all the others are running. At times bankers have no alternative than following the Lemmings' strategy. For example, it may be economically rational for the individual bank to evade capital

requirements by offloading assets via asset backed securities, if major competitors start to do so. Systemic risk and failure cost, however, may rise, and the individual bank may even be aware of this, but still has incentives to follow those who do it. Although bank regulation certainly is necessary to provide the public good of financial stability, too tight regulation may cause more cost by inducing herding behaviour than what can be gained by more stability. In fact, economic risk does not disappear because of regulation, it is only shifted elsewhere, as banks herd in regulatory arbitrage.



The paper progresses in the following way. In the following section, the *population-density theory* is applied to banking in order to describe interaction mechanism among banks. Next, the literature on *herding in financial services* is reviewed. Causes and consequences of herding in capital markets and banking intermediation are discussed. On the *rational herding* side, information cascades, reputation, compensation, and payoff externalities are reviewed. Boxes on herding in foreign currency loans in Austria and on Enron-related issues provide practical examples. On the *behavioural herding* side, the distinction is drawn between individual and interactive causes of herding, and commonly referred to causes are listed and discussed. Evidence from empirical studies on both types of herding in banking and capital

markets is reviewed and put into perspective with factors that favour herding. Analytical bank herding models by Mondschean & Pecchenino (1995) and Pecchenino (1998) are reviewed. Special attention is given to regime shifts as possible triggers of bank herding. The conclusion is drawn that the incentives at work are a crucial factor. The fourth section is devoted to explaining banks' special susceptibility to herding. Several *industry-specific causes* are identified that favour or facilitate bank herding: arbitrage, innovation through imitation, inconsistent decision rules, the common application of certain quantitative methods, procyclicality of bank capital, and the intertemporal attributes of banking products. The fifth section depicts the trade-off between regulation and the cost of regulation and argues that rigid, actor-based, microprudentially oriented regulation and resulting *regulatory arbitrage* may be among the main causes of bank herding. The current regulatory approach puts banking at a disadvantage versus competing sectors, so that banks have no other way than to try to circumvent that rule set. As all circumvent the same rules, they herd. Herding triggers resulting from the 1988 Basle I Accord and likely ones from the currently discussed Basel II accord are discussed in the following. The conclusion is drawn that bank regulators should include macroprudential issues, i.e. consider whether, why and how regulation is broadening or narrowing the *decision space* of banks and where business may be shifted if the decision room of banks becomes too narrow. Bank regulators may also see themselves as agents for specific interest groups (stakeholders) within the financial sector who would gain from more rigid regulation of banks. Herding behaviour can be changed only by altering the constraints and incentive structure set for bank managers. Banks should build in conflict mechanisms in their management processes, for example dialectical inquiry or devils advocate-approaches.

2. Bank Failure as Population Ecology

Organisational ecology assumes that organizations within a certain industry constitute a population that shares certain features and seeks to understand the mutual interactions within and among populations and communities and the mechanisms and processes underlying their growth, regulation and decline (Hannan & Carrol, 1992). The embedded environmental forces strongly influence organizations' rates of birth and death, as evidenced by organisational

ecology research (Haveman, 1993). Embedding in that sense refers to the contingent and interdependent nature of economic activity (DiMaggio, 1994), as populations rely on the same environmental resources, are affected by similar structural constraints and tend to mimic members of the same population more than those from other industries. Organisational evolution in that sense consists of a variety of processes including entry, learning, adaptation, crafting, creative destruction, and exit (Levintahl, 1994).

According to the density-dependence paradigm, levels of competition and legitimisation are embodied in the density of organisational populations, for example in the number of banks operating in a certain region (Hannan & Carroll, 1992). When density is high, the inhibiting effects of competition prevail: the founding rates slows, the fallout rate rises. Entry and exit processes are affected by institutional constraints related to regulation, by economic processes related to the differential size and market power of a few large organisations in the industry, and by ecological forces related to (intra)population density, changes in the level of resource availability, and community level interactions between organisational subpopulations (Freeman & Lomi, 1994). The density-dependence paradigm is empirically evidenced from studies of a wide variety of organizational populations, including banks, savings & loan institutions, credit unions and insurance companies (see, for example, Freeman & Lomi, 1994; Hannan & Carroll, 1992; Haveman, 1994). The notion of selection-induced inertia and population density easily translate into the observation of banks “hunting in herds” (Walter, 1999) or “lemming banking” (Fink & Haiss, 1999).

3. Herding in Financial Services

Most of the literature on herding and informational cascades builds upon a sequential prediction model where each single agent moves at a time, selecting among a finite number of options after observing the actions of the predecessors and evaluating an exogenous signal of bounded precision about the uncertain outcome of the given options (Hirshleifer 1992, Vives, 1996). Effinger & Polborn (2001) divide the herding literature into strategic and non-strategic branches, where the difference lies in the incentives at work. In the “non strategic” branch, the

outcome for the agents depends only on whether the “right” or “wrong” action was chosen by them (e.g. Bikhchandani & Sharma, 2000). When making its decision, an agent does not take into account the benefit this will report to other agents (Vives, 1996). In the “strategic” branch, level of competition and the magnitude of social failure costs are introduced as additional factors (Matutes & Vives, 2000), whereas the outcome is not just based on whether their predictions are right, but rather by their personal next period market value (Effinger & Polborn [2001], referring to the labour market for forecasters; Schafstein & Stein [1990] and Kindleberger [1989], referring to investment managers; Milbourn, Boot & Thakor [1999], referring to bank managers engaged in mergers).

While most of the financial services literature on herding concerns itself with capital market participants and products (e.g. Bikhchandani & Sharma, 2000; Hirshleifer & Teoh, 2003), this paper adds the banking side. Tables 1 and 2 summarise respective empirical evidence on bank and capital market herding. Banks can herd in their (1) operative credit and investment decisions, (2) the factors and information they look at in making those decisions (3) the tools they apply for that purpose, (4) product market decisions, (5) distribution network and market entry decisions, (6) strategic mode decisions like to grow through takeovers, (7) reporting decisions, and (8) investment advice they provide, among others. For example, banks may start to favour certain “hot” industries or regions in providing credit or turn down others; they may open branches and foreign offices where they see others flock in; they may imitate competitors’ products (Persons & Warther, 1997), rush into initial public offerings (IPO; Nelson, 2002) or into providing foreign currency loans (Waschiczek, 2002; Boss, 2003); time new issues following the peers; they may grow by acquisition or venture into investment banking when they see others doing it, retrench from lending to certain markets as their competitors do (Kaminsky & Reinhart, 2000), or follow in investing and divesting in emerging markets (Komulainen, 2001). Insurance companies’ may cascade in underwriting and pricing risk (D’Arcy & Oh, 1997). Institutional investors may pick stocks others did (Lakonishok, Shleifer & Vishny, 1991) or follow in daily trading (Kodres & Pritsker, 2002). Investment managers can mimic buy/sell securities’ decisions according to others (be it influential ones like Warren Buffet or just other traders). Investment newsletters and rating

agencies can follow others in their recommendations for action or evaluation (Graham,1999; Jaffe & Mahoney, 1999).

Table1: Empirical Evidence on Herding by Financial Intermediaries

Author (year)	Herder	Finding	Type
Diamond & Dybvig, (1983)	depositors	Depositors start a run on banks when they see other depositors do so.	payoff externality
Jain & Gupta (1987)	banks	Weak evidence on herding in loans to less developed countries; small ones herded behind larger banks.	reputation
Reve (1990)	banks	“sheep flock behaviour” via market share strategy in the rapidly expanding credit market (+ 100% 1985-1990).	behavioural/ regulatory
Haveman (1993)	savings & loan associations	Weak support that thrifts imitate the behaviour of their size peers. Strong support for the “pull of imitation” of large and profitable banks that serve as a role models for thrifts in decisions to venture into new product markets.	behavioural/ regulatory
Rajan (1994)	banks	Herding in decision to write down assets; once the first bank sets aside loan-loss-reserves, others follow fast.	cascade/ reputation
Engwall (1994)	banks	Upon deregulation, Scandinavian banks followed each other in high-growth strategies, taking on additional risks.	behavioural/ regulatory
Mondschean & Pecchenino (1995)	banks & S&Ls	herding in U.S.-commercial real estate lending in the 1980ies due to tax law (enabling/disabling accelerated depreciation), broadening product ranges for S&Ls & tightening capital ratios.	reputation regulatory
Mondschean & Pecchenino (1995)	foreign banks	herding in recycling of sharply rising petrodollar volume into credits to Latin America due to oil shocks & fed monetary policy	reputation regulatory
Chang, Chaudhuri, Jayaratne (1997)	banks	Even after controlling for the expected profitability of operating a branch in an area, branch openings follow other, existing branches.	cascade
D’Arcy & Oh (1997)	insurance companies	Cascades in the decisions of insurers to underwrite risk and the pricing of insurances.	cascade
Shimizu & Ui (1998)	banks	Contagious effects of expectations when a number of financial institutions collapsed in Japan towards the end of 1997.	cascade
Huang & Xu (1999)	depositors and banks	Poorly informed depositors are likely to herd to overinvest in bank frenzies and to herd to panic in bank crashes.	cascade
Milbourn, Boot & Thakor (1999)	banks	Banks’ merger & acquisition (scale) and product (scope) strategies may be driven by herding.	reputation
Komulainen (2001)	Inter-national banks	Herding behaviour by international lenders creates a mechanism for capital account reversals experienced in recent currency crises in emerging market economies.	cascade
Volbera, van den Bosch, Flier & Gedajlovic (2001)	banks and insurance companies	Mimetic behaviour in shaping renewal in the services industry derived from banks “exploitation strategies” (improving efficiency of existing activities” rather than explorative [innovative] strategies).	cascade/ payoff externality behavioural
Rötheli (2002)	major Swiss banks	Herd-type lending was partially determined by competitors’ decisions and has potential to generate credit cycles.	cascade / reputation
Waschiczek (2002), Boss (2003), Tzanninis (2005)	bank clients and banks (implicit)	Boom in foreign currency borrowing & lending in Austria attributed to herding on media signals & loan brokers and collateralisation, respectively.	cascade

Source: compiled by the author.

Table 2: Selected Empirical Evidence on Herding in Capital Markets

Author (year)	Herder	Finding	Type
Scharfstein & Stein (1990)	investment managers	Even better-than-average investment managers follow the crowd.	reputation
Lakonishok, Shleifer & Vishny (1992)	investment managers	Weak evidence on stockpicking herding among US pension funds.	cascade
Hirshleifer, Subrahmanyam & Titman (1994)	security investors	Information utility can increase in the number of other investors who gather the same information: Investors are more inclined to gather information if others do.	payoff externality
Trueman (1994)	investment analysts	Inference from prior analysts' recommendations.	cascade/ reputation
Grinblatt, Titman & Wermers (1995)	investment managers	Little evidence on stock herding by mutual funds; however, funds exhibit greater herding in buying past winners than in selling past losers (i.e. are momentum investors).	cascade
Avery & Zemsky (1998)	stock market	Options may provide valuable info on expected volatility of underlying.	cascade
Lux (1998)	stock traders	Chartists behaviour combines elements of mimetic contagion and trend chasing leading to waves of optimism and pessimism.	cascade
Oehler (1998)	investment managers	Benchmark herding among German investment (stock) funds, stronger for non-DAX small-cap stocks.	cascade/ benchmark
DeBondt & Forbes (1999)	security analysts	Coupling of large forecast errors with unusually high consensus in forecasts among security analysts.	cascade/ reputation
Graham (1999)	investment newsletters	Herding decreases with the analysts' ability and increases with the analysts initial reputation, the strength of prior public information and correlation of signals.	reputation
Jaffe & Mahoney (1999)	investment newsletters	Weak evidence on herding as cross-sectional dependence of recommendations across newsletters.	cascade
Kaminsky (1999)	stock market	Some large changes in Asian stock markets 1997-1998 cannot be explained by substantial news but seem driven by herd instinct.	behavioural
Kim & Wei (1999)	investors	Foreign investors herd significantly more than resident ones	cascade
Wermers (1999)	investment managers	Mutual funds herd, especially in small growth stocks.	cascade
Chang, Cheng & Khorana (2000)	investment managers	No herding in the U.S. and Hong Kong; partial evidence on herding in Japan; significant evidence for South Korea & Taiwan.	cascade
Oehler & Chao (2000)	investment managers	Weak benchmark herding for bond funds.	cascade/ benchmark
Hong, Kubik & Solomon (2000)	investment analysts	Consistent with career-concerned herding, inexperienced analysts deviate less from consensus forecasts and are more likely to be terminated for inaccurate earnings forecasts than their experienced counterparts.	reputation
Welch (2000)	security analysts	Prevailing consensus and two most recent revisions by other analysts influence recommendations.	cascade / reputation
Thomas (2002)	futures traders	Herd-like pricing behavior in stock index futures	cascade / behavioural
Kargin (2003)	investment analysts	Financial analysts who track a company are biased by prior reports. Payment should be made dependent on reports of other analysts.	cascade/ reputation
Kim & Pantzalis (2003)	security analysts	Herding is more pronounced among analysts concentrating on diversified and foreign companies; herding increases with task difficulty.	cascade/ reputation

Source: compiled by the author.

In the most general form, ‘herding’ could be defined as mutual imitation leading to a convergence in action space (Welch 2000; Hirshleifer & Teoh, 2003) or as behaviour patterns that are clustered or correlated across individuals by interaction (Devenow & Welch, 1996; Kim & Pantzalis 2003), where the incentive to adopt a behaviour increases with the number of previous adopters (Welch, 2000). It is not just, let say, profit-maximizing investors, increasingly with similar information sets, who react similarly to a joint causal factor at more or less the same time. Herding is more than unrelated, parallel action, as it *requires* a *coordination mechanism* (Devenow & Welch), for example real or illusionary social pressure; *leaders and a rising mass of followers* (i.e. that there are threshold effects where the behaviour by a critical number of individuals leads to a tipping in favour of one behaviour; Hirshleifer & Teoh, 2003:52); visible *signals* to herd on; and *incentives* to follow the heard, be they high initially or increasing with the size of the herd. At the heart of the concept is the notion of social learning, of individuals (investors, credit analysts) being influenced from observing others’ signals (Argyris, 1976; Hedberg, 1981; Vives, 1996). These signals can be either individual actions (for example received by observing competing colleagues from other project finance units offers’ finance a specific project you have to evaluate) or a widely spread “signal” rule to coordinate (for example a benchmark-related movement). Herding behaviour is *fragile*, in that it may break easily with the arrival of some trigger (for example, new information)¹; *idiosyncratic*, in that “random events combined with the choices of the first few players determine the type of behaviour on which individuals herd” (Bikhchandani & Sharma, 2000:6); is *dynamic* in that a small change in one parameter can quickly change the systems’ behaviour (Dockner & Gaunersdorfer, 1995), for example if the price increase does not stimulate supply sufficiently to counteract the price rise (Siebert, 2002); comes in *waves* in that delay is followed by a sudden simultaneous action and *path dependent*, as the outcome depends on the order of activities (Hirshleifer & Teoh, 2003:32). Due to its inherent nonlinearity, herding may be best modelled by nonlinear dynamic systems (Dockner &

¹ The susceptibility to large changes by a minor trigger is termed „bifurcation“ in chaos theory. See Dockner & Gaunersdorfer (1995) for a review.

Gaunersdorfer, 1995).

There are two polar views of herding, termed the “rational” and the “behavioural” view (Devenow & Welch, 1996; Oehler, 2000; Chang, Cheng & Khorana, 2000). The *rational view* centres on externalities, profit/utility maximizing decision making being distorted by information difficulties, principal-agent incentive issues or preferences for conformity. The *behavioural view*² holds that decision-makers are “satisficing”, economizing on information processing or information acquisition costs by using “heuristics” and that their rationality may be bound by external or internal constraints, including investor psychology. These also include anomalies like bubbles, fads, noise-trading, sentiment, momentum strategies and trading rules (DeBondt & Thaler, 1989; Shleifer & Summers, 1990; Shiller, 2003).

Based on the dichotomy of social learning, rational expectations and information asymmetries (Vives, 1996), Effinger & Polborn (2001) refer to “herding” as the phenomenon that people follow the example of other people in a sequential, cascade-like decision problem without making use of their private information. Dealing with herding on a strictly rational, one-on-one unidimensional level where the order in which individuals act is exogenously given provides many useful insights to specific issues (for example in stock trading, see Bikhchandani & Sharma, 2000). However, the assumption that agents follow rigid sequential procedures in which individuals take decisions one after the other in order to maximize profit/utility is far from capturing the functioning of markets in which agents can interact simultaneously or sequentially or leading or lagging, are merely satisficing and of bounded rationality. Agents observe behaviour of others and know that the system is prone to shocks (Vives, 1996). Due to a failure to internalise the consequences of the actions of others, individual actions that, when taken in isolation may appear reasonable, but collectively those actions may add up to undesirable outcomes (Borio, Furfine & Lowe, 2001:9). While the distinction between rational and behavioural herding is helpful for conceptualisations, their effects may be intertwined and it is frequently difficult to discern between the two in herding behaviour observed in real markets. Thus it is important to consider both.

² At times also termed „non-rational“ or „intermediate“ (e.g. Devenow / Welch 1996). The term „behavioral herding“ chosen here allows for inclusion of findings from behavioral finance (e.g. Shiller 2003) and organizational ecology (e.g. Haveman 1993) that otherwise would be omitted.

3.1 Rational Herding

There are several potential reasons for rational herd behaviour in financial markets. The most important of these are (imperfect) information cascades, principal/agent concern for reputation, compensation structures and other payoff externalities.

Information cascades: This type of herding can arise when there is uncertainty about the accuracy (or the lack of) of the information possessed by market participants (Bikhchandani, Hirshleifer & Welch, 1992; Bikhchandani & Sharma, 2000). In that case market participants can gain useful information from observing previous market participants' decisions, to the point where they rationally ignore their own private information signals or when they free-ride informationally (Hirshleifer & Teoh, 2003; Crook, 2003).³ In the rational beliefs version, investors adapt their beliefs according to a finite set of predictors (Dangl et al, 2001). When investors lack information on prospective business projects, they may be keen to observe other investors' behaviour in order to infer knowledge from others' actions (Contact Group on Asset Prices, 2001). When there are costs to collect and analyse information, creditors may be more inclined to follow others' behaviour (Das, Davies & Podpiera, 2000:15). Gathering and processing information on the fundamentals of emerging markets may be perceived as more difficult and expensive as learning about other investors' decisions (Komulainen, 2001:7). This bandwagon effect has been observed in international capital markets as a reason for large capital flows and contagion effects (Calvo & Mendoza, 2000).

Herding theory suggests accordingly, that prior investment analysts' choices are an important influence on the next recommendation (Welch, 2003). Bankers similarly may mimic the behaviour of an initial group of investors in the false belief that this group knows something, for example small U.S. banks following the large ones in lending to less developed countries (Jain & Gupta, 1987). Thus investment decisions of early individuals are reflected in the subsequent price of investment. Actors, for example depositors withdrawing money from a bank with a long line of customers waiting to recover their deposits, "socially" learn from

³ Olson (1971) claims that, when interests are shared, rational actors should prefer to free-ride, that is, to let others pay the cost of goods that will benefit everyone.

other actors (i.e. the ones in front and behind them). Waschiczek (2002) argues that increasing public signals from media and loan brokers may have formed an information cascade that led Austrian borrowers to herd for foreign currency loans. Agents may “herd” on a wrong action following misleading external signals while disregarding potentially more valuable private information in an asymmetric information world (Bikhchandani & Sharma, 2000). Investors may also demand „lemon premiums“ from firms issuing stocks, based upon the assumption that firms only have incentives to issue equity when the stocks of their firms are overvalued (Park,1999). Such information asymmetries are common between borrowers and lenders (Borio, Furfine & Lowe, 2001), but may influence banks’ portfolio decisions to a varying degree (Park, 1999). Other banks may start to behave accordingly. Random events combined with the choices of the first few market participants determine the type of behaviour on which the followers herd. This is exemplified in decisions of banks to write down non-performing assets (Rajan,1994),⁴ of banks to follow other banks in opening branches (Chand, Chaudhuri & Jayaratne, 1997), of depositors to infer a bank run (Chen, 1999), of borrowers to pick up foreign currency loans and banks providing those (Waschiczek, 2002)⁵, by investment analysts’ inference from prior analysts’ recommendations (Trueman, 1994; Kim & Pantzalis, 2003; critical Jaffe & Mahoney, 1999) and by mutual fund investors (Wermers, 1994). Kaminsky & Reinhard (2000) argue that if influential banks need to re-balance the overall risk of their asset portfolio and to recapitalize and provision following initial losses, this can lead to a marked reversal in bank credit across markets where the banks have exposure.

⁴ Llewellyn (2002) argues that banks seem to have been able to determine loan-loss provisions on the basis of managing the level of declared capital rather than to reflect the true quality of loans.

⁵ The underlying economic reason rests in the lower interest rates for foreign currency loans (Yen and SFR in particular) compared to loans denominated in Euros.

Box 1: Foreign Currency Loans and Information Cascade

Austria accounts for roughly 3% of the Eurozone monetary volume (M3) and for 3.2% of total credits, but for about 18% of total eurozone foreign currency(FC) credit (including about 37% of Swiss Franks and 49% of Yen-credits), amounting to about 19% of total Austrian corporate loans and 25% of total Austrian retail loans (Boss, 2003; Tumpel-Gugerell, 2003). Within seven years (1996-2002), FC denominated loans showed an astounding 400% growth in Austria, equivalent to around 50% of the Eurozone FC loans to companies and retail clients. The economic rationale for borrowers rests with the lower nominal interest rates for FC loans than for euro-denominated loans. However, those go hand in hand with exchange rate and interest rate risk and, in case of bullet loans with funding plans, are also exposed to the performance risk of the repayment vehicle. The economic gains for creditors rest with retaining or rising market share, higher collateralisation, higher fees and higher volumes in international markets. Those short-term creditor gains are paralleled by higher borrowers' default risk long term, possible maturity mismatches in refinancing, concentration risk upon regional and collateral-type (i.e. household real estate) concentration, foreign exchange risk (in case of massive defaults and as a rising component of Austrian credit risk), higher operating risks and reputation risks building up over maturities of around 20 years (Waschiczek, 2002; Tzanninis, 2005).

While the public sector has taken out FC loans for decades, the rationale (diversification, wider range of lending terms, higher liquidity) does not hold true for retail and the many small and medium sized company (SME) borrowers. Moreover, Austrian investors are rather risk averse, so the borrowers' move seems rather odd. People in small open economies like Austria may be more acquainted with using FC, but that should also be the case for other eurozone economies (where FC loans are much lower). The Austrian National Bank and the IMF attribute the formation of herd behaviour in the demand for FC loans to information cascades, based on the rise of news agency reports on the topic, loan brokers' and bank' marketing efforts and a geographic spread from the west (bordering Switzerland) to the whole of Austria (Boss, 2003; Wachiczek, 2002; Tumpel-Gugerell, 2003; Tzanninis, 2005).

Reputation: this type of herding can arise when there is uncertainty on the employers' or other principals' side about the investment managers' or credit officers ability to pick the right stock or debtor (Scharfstein & Stein, 1990). Managers may mimic the actions of other managers, completely ignoring private information, as Keynes' (1936) observed by arguing that "it is better for reputation to fail conventionally than to succeed unconventionally" (Devenow & Welch, 1996:40)." Thus an unprofitable decision is not as bad for reputation when others make the same mistake (Scharfstein & Stein, 1990:466). Reputational herding has mainly been analysed with regard to investment analysts (Trueman, 1994; Hong & Kubik,

2000; Kargin, 2003)⁶, investment managers (Scharfstein & Stein, 1990), and investment newsletters (Graham,1999). Borio, Furfine & Lowe (2001) argue that reward structures that limit blame in the case of collective, as opposed to individual failure, is the most common factor behind bank herding behaviour. If failures are widespread, there may be a strong tendency not to blame individual managers for the failure of the bank. Rajan (1994) showed that once the first New England bank set aside loan-loss-reserves, other banks that were similarly reluctant to recognize bad loans earlier follow quickly. That is, when enough bankers publicly write down their loans, low-quality bankers can follow the herd and write down their poor loans also without being detected, being able to trade off long-term for short-term earnings by making bad loans. Berger & Udell (2003:5) argue that it may be optimal for some bank managers to hide the quality of their loan officers, credit risk managers and their own loan review from outside claimants by avoiding the implementation of risk instruments that might force them into reporting lower profits in the short run than comparable banks. Paul, Horsch & Stein (2002) argue that reputational contagion plays a role in banking and insurance criseses.

Greenspan (2002) refers to reputational herding by arguing that "behavioural factors, .. the periodic shifts in risk attitudes among lenders and other asset holders ..[and] "a herdlike propensity to seek an increase in risk premiums" cause risk discounts to erode as the level of optimism lowers the barriers to prudence. In that case, even those lenders less inclined to reach for more risk-laden proposals are driven to maintain their share of the rising credit flow, if not increase it (Greenspan, 2002). While an environment of contagious optimism makes more and more proposals appear bankable, the only way bankers can adhere to lending policies significantly more stringent than those of their competitors is to effectively exit significant areas of banking (Greenspan, 2002) – an option not available for credit officers that want to stay in business. "Ever less attention is paid to potential problems as the cautious

⁶ Kargin (2003) puts forward the argument that the Institutional Investor publishes rankings of financial analysts and that they get paid according to their position in the ranking. That ranking certainly facilitates tracking and copying them. Loistl & Hafner (2002), however, argue that fewer „sale“ than „buy“ recommendations by securities analysts are not necessarily due their fear of coercion following negative articulations. Investment analysts may as well just try to service investment managers, who normally don't engage in stock picking by buying or selling their whole position.

voices appear curiously quaint and have little quantitative support because all the recent news and factors are favourable. Voices of caution find it difficult to find a case for restraint because the quantitative indicators do not support caution until too late in the lending expansion” (Greenspan, 2002). He commends to change the balance of power between lending officers and risk-control-officers by granting new authority to the latter, to adopt more formal, quantitative risk-management techniques in order to arm risk-control officers with better quantitative justification. Park (2000), however, cautions that in a herding environment, tighter market-sensitive risk management systems may actually make markets less stable and more prone to crisis. As unsound incentive structures within the financial sector have contributed to excessive risk-taking, both by individual loan managers and by entire financial institutions, as alleged by the Contact Group on Asset Prices (2003), there is agreement that incentive structures of loan officers should be aligned with the long-term standing of the bank (Greenspan, 2002).

Compensation: Investment analysts as a matter of principle are oriented on some benchmark like the S&P500, with more or less deviation from that mean possible (Loistl & Hafner, 2002). Thus investment managers are usually compensated relative to that benchmark rather than on absolute performance.⁷ This may, however, distort the investors’ performance and lead to herd behaviour, as the investor (i.e. agent) has an incentive to imitate the benchmark investor in that the optimal investment portfolio moves closer to the benchmark (Devenow & Welch, 1996). Under-performing the benchmark would cause the agent to try even harder to match. For the individual employer (principal), writing such relative performance contracts may be beneficial under conditions of moral hazard (to encourage the agent to gather information) or adverse selection (to separate good portfolio managers from bad). In order not to endanger short-term performance, institutional investors similarly accepted “creative” accountancy methods (Loistl & Petrag, 2002). Bikhchandani & Sharma

⁷ Loistl & Hafner (2002) argue, that the fewer „sell“ recommendations compared to „hold“ or „buy“ should not be attributed to analysts’ fear of negative forecasts, but rather to the fact that portfolio managers hardly sell their whole position in certain stocks. Professional investors use analysts’ recommendations for marginal change in positions held and not for total changes in investment strategy. Performance attribution follows the same principle.

(2000) conclude on some mild support on compensation-based investment manager herding.⁸ According to Borio, Furfine & Lowe (2001), formal compensation schedules that emphasise relative performance can exacerbate the tendency for herding. In light of the issues that surfaced around Enron and parallel recommendations for telecom stocks by investment analysts, Loistl & Hafner (2002) emphasize the work environment of investment analysts and advocate strengthening their monitoring role as well as organisational and legal measures to avoid that that they can be put under pressure.

Box 2: Reputation, Compensation and Analysts Forecasts

In the aftermath of the Enron⁹ and dotcom investment crises, criticism surfaced with regard to the overwhelming influence of star analysts (like “cheerleader” Jack Grubman), alleged excessively close relationships of investment analysts with the companies being analysed, and claims that pressure from investment banking has distorted the research process (Farrow, 2003; Loistl & Petrag, 2002). Analysts who are optimistic relative the consensus are more likely to experience favourable career outcomes; for analysts who cover stocks underwritten by their houses, career outcomes depend less on accuracy and more on optimism (Hong & Kubik, 2003). Analysts thus were subject to pressure from investment bankers and companies either to tone down or remove negative comments from their published research. With an eye on their pending stock options, companies’ executives developed an interest for pressure on analysts not to be overly critical. “With investment banking bringing in the money, many in research were naturally keen to get some of the pie” (Farrow, 2003:20), this may have been in their very best individual, short-term interest. Trueman (1994), Hong, Kubik & Solomon (2000) and Hong & Kubik (2003) attribute biases in analysts forecasts to career-concerning motivated herding. In the meantime various efforts like the Sarbanes-Oxley Act that, among change in auditors and other measures, codifies principal-agent conflicts of investment analysts (Loistl & Hafner, 2002; Bazerman, Loewenstein & Moore, 2002), and a revamped research model, for example by splitting research and brokerage operations in separate units, and calls for divorcing analyst’s compensation from the success of their recommendations (Farrow, 2003) have been enacted or are in progress. Parallel efforts to press institutional investors into playing a larger role in the oversight of corporate governance standards are under way (Westlake, 2002).

Payoff externalities: at the core of this type of herding are bank runs (e.g. Bhattacharya & Thakor, 1993; Calomiris & Mason, 1997; Chen, 1999; or more recently Samartín, 2003)

⁸ For a discussion of executive compensation in banks see, for example, Magnan & Stonge, 1998.

⁹ For a discussion on causes and effects, see for example Loistl & Petrag (2002); for suggestions towards improving corporate governance, see for example Newell & Wilson (2002).

and the refusal of creditors to renegotiate loans (Hirshleifer & Teoh, 2003) that take place when the idea of withdrawals spills over. Depositors running on banks when they observe other depositors doing so is a common textbook anecdote, and several studies (e.g. the seminal work by Diamond & Dybvig, 1983) provide evidence. The refusal of one bank may make other creditors more sceptical in case a distressed firm seeks to renegotiate its debt. Similarly visible may be sharp changes in trading volume and hence liquidity of stock exchanges, causing further traders to switch to the deeper market (Devenow & Welch, 1996: 606). In other situations, investors may find it worthwhile to acquire further information (for example research reports) only if other investors do. When investors herd on information acquisition, their expected utility from gathering information can increase in the number of other investors who gather the same information (Hirshleifer, Subrahmanyam & Titman, 1994). The observation of payoffs from the repeated actions of other firms may similarly lead to boom and bust patterns in the adoption of financial innovations (Persons & Warther, 2002).

As there is always an information asymmetry between any borrower and lender, and some agency problem when owners of funds delegate investment decisions, there will always be some possibility of rational herding on information cascades, reputation, compensation and payoff externalities (Bikhchandani & Sharma, 2000). Disclosure rules, timely provision of data and better designed compensation contracts are advocated as remedies to make markets and institutions more transparent and hence less herding prone (Bikhchandani & Sharma, 2000:28) – proposals that mirror major aspects of the ongoing Basel II banking rule revision.

3.2 Behavioral Herding

Limited capabilities and opportunities for rational information processing and the tendency towards uniform acting are key features of the behavioural finance approach, which adds findings from psychology, sociology and organisational behaviour to capital market theory and puts the focus on market participants' behaviour, and on bounded rationality as optimisation under constraints (Shiller, 2003; Shleifer, 2000; Thaler, 1999; Todd & Gigerenzer, 2003). The behavioral view attributes fluctuations to random waves of optimism

and pessimism that can be self-fulfilling, but are not necessarily related to fundamental conditions (Howitt & McAfee, 1992). Models that relax assumptions, for example on the information quality of prices (i.e. the rational expectancy equilibrium), may be helpful to explain real financial market behaviour and “stylised” facts” like bubbles, contagion and crashes (Dangl et al 2001).¹⁰ Hahn (2001) notes that the utility-maximizing assumption has to be relaxed for certain groups of “unsophisticated” markets participants, as there are differences among financial market participants with regard to their ability to process information (access, expertise, speed etc.) and due to heterogeneous subjective expectations (Steiner & Uhlir, 2001).

Rational players such as professional investors (“smart money”) may even be forced not only to go with the herd by unsophisticated market participants, but also to front-run it so as to be sure to escape the stampede safely at any instant (Hahn, 2001:3). According to Shefrin (2000), Shiller (2003) and Shleifer (2000), there are indeed several “investor psychology” and “investor sociology” phenomena which cannot be explained by purely utility maximizing behaviour that involve some type of herding. Such phenomena include: (1) dependence of behaviour upon the observed behaviour of others, or the results of their behaviour; (2) convergence by actors such as firms or individuals upon mistaken actions based upon little investigation and little justifying information; (3) the tendency for actors to delay decisions and then suddenly rush to act simultaneously; (4) imitation as sub-rational mechanism that induces an individual to be influenced by another to behave the same way; (5) contagion in the emotions of individuals interacting as groups (Hirshleifer & Teoh, 2003). According to the behavioural finance approach, semi-rational decisions of individuals may thus trigger into the aggregate in spite of the fact that deviant behaviour may neutralize itself to the norm, may have to leave the market by natural selection or may migrate to the dominant logic, thus relaxing traditional capital market theory assumptions (Holzmann & Thießen, 2002:124).

¹⁰ Speculative bubbles are instances in which actual prices deviate increasingly from a long- or medium-term fundamental value (Siebert, 2002:114). For a discussion of capital flows, contagion and herding see, for example, Dittbacher, Fidrmuc & Walter, 2002:129.

Table 3: Behavioural Explanations for Herding Phenomena
<i>Individual Factors</i>
Reference points and loss aversion
<ul style="list-style-type: none"> • Prospect Theory/framing biases • Anchoring/Endowment effect: what you start with matters (“base case”) • Escalating commitment: tendency to invest more if the project is going poorly • Sunk costs: avoiding regret and seeking pride • Selective attention (home bias; attachment of interests to another party) • Status quo bias: more to lose than to gain by departing from current situation • Cognitive dissonance (seeking only confirming evidence) and minimizing regret (“confirmation trap”) • Reasoning by inappropriate analogy
Overconfidence
<ul style="list-style-type: none"> • Illusion of control: unfounded beliefs in being able to influence events • Illusion of knowledge: overconfidence arising from being given partial information • Disposition effect: disposition to sell winners too early and ride losers too long • Underestimate uncertainty • Fallacy of believing change is predictable (“luck must change soon”)
Statistical errors
<ul style="list-style-type: none"> • Extrapolation bias: failure to correct for regression to the mean (“mean reversion”) and sample size • Base rate fallacy: lack to consider relative instead of absolute relations • Gamblers’ fallacy: need to see patterns, when, in fact, there are none • Representative heuristic/overreaction: excessive weight placed on recent evidence • Failure to adjust probabilities for hindsight and selection bias • Rare, dramatic, striking events assigned probabilities too high or too low • Excessive weight given to personal evidence relative to large-sample statistics • Feedback trader, taking rising prices as signals to buy/falling prices as signal to sell • Conjunction fallacy: two events in parallel considered more likely than just one • Winners curse: auctions can raise the price and the appetite for risk
<i>Interactive Factors</i>
<ul style="list-style-type: none"> • Epidemic contagion: action led by others’ decisions rather than systematic analysis • Groupthink: pressure to conform to group consensus • Abilene paradox: groups may take decisions that no single member would take. • mimetic isomorphism – the achievement of conformity through imagination • feedback bubbles: from price increases to increased investor enthusiasm to increased demand to further price increase • fading institutional memory: time and personnel turnover effects
Source: adapted from Rubinstein (2001), Hockmann & Thießen (2002) and Shiller (2002)

Individual factors

With *prospect theory*, Kahneman & Tversky (1979) provide an important base for the fact that people are far more upset with losses than they are pleased with gains, i.e. have skewed risk/return-utility, with far-reaching consequences for financial markets, for example with regard to market forecasts (Fisher & Statman, 2000) and investment strategies (Scott, Stumpp & Xu, 1999). *Cognitive dissonance* occurs when bankers interpret information in a biased way, thereby reinforcing the prevailing belief (Festinger, 1957). According to “*wishful thinking*,” and the Kahneman & Tversky (1979) “*representativeness heuristic*”, people may try to forecast by seeking the closest match to past patterns, without paying proper attention to the probability of matching the pattern. The wide use of such “rules of thumb” (Ellison & Fudenberg, 1993) such as “momentum strategies” (Grindblatt, Titman & Wermes, 1995) and noise trading (DeLong, Shleifer, Summers & Waldman, 1991) similarly fall under the notion of behavioural herding¹¹. A momentum investment strategy is the tendency of an investor to buy and sell stocks based on past returns of the stocks, that is, to buy recent winners and sell recent losers (Bikhchandani & Sharma, 2000). The sunk-cost bias shows up with disturbing frequency in banking (Hammond, Keeney & Raiffa, 1998). When a borrower’s business runs into trouble, lenders often advance additional funds, and are more likely to do so if they see other bankers do the same to companies within the same industry. Auditors, for example, are fallible to equate their interests with their clients (Bazerman, Loewenstein & Moore, 2002). Overconfident securities traders can do better than purely rational traders in exploiting mispricing (Hirshleifer & Luo, 2001).

Interactive factors

Herding may be driven by certain types of dysfunctional interaction. According to the *Abilene Paradox* (Harvey, 1974), bank management as a group may take decisions that no

¹¹ DeLong et al (1991) argue that „smart money“ may amplify rather than attenuate the influence of „stupid“ money.

single member of the board would take. Under pressure for *groupthink*, individual bank managers may never really evaluate others' positions or express an alternative point of view (Janis, 1972). The concept of *mimetic isomorphism* – the achievement of conformity through imitation – was developed by DiMaggio & Powell (1983) to explain how organisations converge to the behaviour of other organisations in the same market and may provide an alternative explanation. Berger & Udell (2003) hypothesise that “*institutional memory*” problems may drive patterns of business lending by banks that are associated with a deterioration in the ability of a bank to recognise potential loan problems and an easing of credit standards over its loan cycle. They specifically refer to lending institutions tending to forget the lessons they learned from their problem loans as time passes since their last loan bust due to the deterioration in loan officer skills, personnel turnover and a reduction in the capacity of the bank's internal monitoring system during boom times. As these are parallel processes across banks, they favour herding (Berger & Udell, 2003:5).

Bubbles, contagion and market sentiment are often seen as resulting from human interaction in terms of *feedback* (e.g. Shiller, 2003).¹² Through contagion, investors' interest or attention for a certain stock may be more influenced by other investors than by systematic, fundamental analysis (Oehler, 2000:986). Strong upward price or volume movements or broad media coverage may create success for some investors, thereby attracting public attention, promote word-of-mouth enthusiasm and drive up expectations (Shiller, 2000). “Positive feedback” strategies can lead to wider price swings and thus volatility, as was the case in the 1997/98 Asian crises with regard to the volatility of capital flows (Eichengreen et al, 1998; Reisen, 1999b). Noise investors, i.e. those that do not have fundamental information, follow the activities and expectations of other investors (Oehler, 2000:986). According to the noise trade approach, some of the investors are not fully rational (the noise traders), and arbitrage is risky and hence limited (Shleifer & Summers, 1990). Bank lending behaviour might be based on euphoric expectations during investment booms, be they real, expected or perceived due to “over-optimism” (Minsky, 1977). The opposite, i.e. credit rationing, may be caused by

¹² For feedback strategies, also see Dockner & Gaunersdorfer (1995).

“desaster myopia”, when the likelihood of some economic shock or downturn may increase as time passes since the last such episode (Guttentag & Herring, 1984). Trust and the strength of signals also plays a role. According to Standard & Poor’s (2003:43), “the degree of public confidence in [a] company’s financial viability is critical for it to have access to capital markets, bank credit, and even trade credit. Accordingly, the psychology and the perceptions of capital providers must be taken into account.”

Agglomeration in the sense of social and geographical localisation of information may also be an important part of the process by which investment and securities trading behaviour spread (Hirshleifer & Teoh, 2003:52). This “availability heuristic” shows up in effects of familiarity on investment and can also explain the “home bias” puzzle of international finance (Tesar & Werner, 1995). Clustering of similarities in beliefs through communication of market participants and through their usage of the same data set for the inference of probabilities may also drive correlations in behaviour as inferred by the Kurz (1997) *rational belief equilibrium* (RBE). Kurz (1997) assumes that market participants’ beliefs are correlated, but not necessarily their actions. Market participants only have beliefs, no factual knowledge about structural relationships among exogenous factors and optimal actions of others. If market participants’ beliefs are highly correlated, this leads to an endogenously increasing aggregate behaviour, a kind of herding on beliefs. Volbera, van den Bosch, Flier & Gedajlovic (2001) provide empirical evidence on banking industry-specific herding. Given the closed-knit regulatory environment, mimetic behaviour in shaping renewal in the services industry is derived from banks “exploitation strategies” (improving efficiency of existing activities” rather than explorative (innovative) strategies) and interpreted as the outcome of a dominant industry logic.

3.3 Bank Herding

The initial interest in bank herding was derived from bank runs, credit crunches and currency crises. Diamond & Dybvig (1983) made a significant contribution by linking the vary nature of banking business to the propensity to herd. Demand deposit contracts allow for the

transformation of illiquid assets into more liquid liabilities and thus both provide a rationale for the existence of banks and for their vulnerability to runs (Samartín, 2003). Herding behaviour produces a reason and mechanism for large capital outflows witnessed during historic currency crises (Komulainen, 2001; Lam, 2002). Based on these initial observations, the application of herding concepts to banking has broadened considerably. Bankers, as any actors within certain industries, tend to develop common rules of behaviour in interaction with one another, i.e. they construct their respective reality together by way of interaction. If information about underlying values is absent or unusual, bankers are likely to become preoccupied with the views of others in the financial community (Crook, 2003). In extreme cases, the views of other market participants are taken seriously even when flatly contradicted by facts as may be readily available. Group pressure may rise by bringing certain moves and investments in fashion. From time to time, such mental aberrations are even dignified by being presented as “schools of thought”: from “momentum investing”, “cash-burn-rate” to the “new economy” (Crook, 2003). The stronger the pressure of the conditions outlined above, the more funnel-shaped becomes the banks’ decision space and repertoire to act over time.¹³ If bank managers develop norms to avoid conflict, the respective banks are likely to end up, for example, in the Abilene Paradox (where management as a group makes a decision to do something that no single member of the group would do; Harvey, 1974), in groupthink (where individual bank managers never really evaluate others positions or express an alternative point of view; Janis, 1972), or in cognitive dissonance (where bankers interpret information in a biased way, thereby reinforcing the prevailing belief; Festinger, 1957), as discussed above.

Mimetic behaviour may be the core trigger behind the current merger wave among banks (Milbourn, Boot & Thakor, 1999). Copycat behaviour may be individually rational, for example when each credit officer is attempting to avoid criticism by senior management for not reaching volume goals (or by shareholders for not meeting cost/income-ratios) and therefore follows what is conceived as “the general view of lending”. A close parallel may be found in the behaviour of dealers in the treasury and securities trading departments of banks and among investment analysts and newsletters (Bikhchandani & Sharma, 2000). Currency

¹³ For a general discussion of the outcomes of perceived managerial discretion, see Carpenter & Golden (1998).

and investment managers tend to act alike because their compensations are based on how much they perform in comparison to another (Kindleberger, 1989; BIS Committee on the Global Financial System, 1999:16). Similarly, the success of the relative value arbitrage trading strategies pioneered by Long-Term Capital Management, together with the high regard for its staff, bred emulators at other hedge funds and in banks' trading operations (BIS Committee on the Global Financial System, 1999:11). The mimic effect may be reinforced by the highly mobile and therefore easily transferable and liquid character of banking products.

Cutting out or suppressing the "conflict stage" in a banks' asset and liability decisions provides optimal breeding conditions for a combination of poor bank management, fraud and wrong client perceptions on the likelihood of intervention. An escalation of the locus of decision-making toward senior managers without discussion among the ranks may lead to similar conditions (BIS Committee on the Global Financial System, 1999:15). As long as banks are sound and prudently managed despite the rigid regulatory environment and resulting stakeholder incentives, there is a certain pluralism in reaching credit and investment decisions enshrined in the co-existence of organisational subunits with different and potentially competing strategies and mental models within the same bank. In distress, however, banks too often conceal the magnitude of their financial woes; some continue to make loans in an effort to spur recovery, others fail to account for non-performing loans in their books. Banks therefore should build in conflict stages into the organisation, for example by installing devils advocates (Schwenk, 1988) or critical thinking processes (Halpern, 1998). The Basle II intention of completely separating the tasks of credit and risk officers goes into this direction.

3.4 Bank Herding Models

In the Basu (1991) loan pushing model, investors base their strategies on what they see other investors finance, and are themselves not searching for information. An excess supply of credit is viewed as a positive sign by interdependent investors. In case bond issues or syndicated loans are oversubscribed, banks and other investors regard that as a sign of creditworthiness and adjust their lending policies accordingly. Smaller-than-expected subscriptions for a bond issue can cause market withdrawals. Mondschean & Pecchenino

(1995) and Pecchenino (1998) similarly provide models on bank herding in which banks find it optimal to increase size and portfolio risk if they expect aggregate lending to increase. In Mondschean & Pecchenino (1995), bank managers are assumed to differ in their preferences towards risk. There are two classes of agents: banks and depositors. All agents know the portfolio of assets available to banks and the portfolio return distributions. An increase in loanable funds represents a shift in the aggregate supply to the market, which will lead to a decrease in interest rates. Bank risk is known to the market and risk neutral depositors distribute their funds so that they earn an expected return equal to the risk-free rate. Portfolio risk as a possible cause of bank failure in the model is chosen optimally by banks based on their preferences towards risk and depositors behaviour. Given the assumed common knowledge of bank risk preferences, risk neutral depositors allocate their funds among banks with different risk preferences. While banks are assumed to be small relative to the market, risk-adjusted portfolio returns are declining in aggregate lending. If banks need to raise funds outside their normal deposit base, it is more costly. Banks must make their lending decisions based on expectations, i.e. prior to knowing the level of aggregate lending. The banks, taking into account the behaviour of their rivals as well as the cost of changing portfolio risk, optimally choose size and risk exposure given their expectations of aggregate lending. Based on this model, Mondschean & Pecchenino (1995) arrive at the following predictions:

- An increase (decrease) in expected aggregate lending leads individual banks to increase (decrease) both lending and portfolio risk. This implies that herd behaviour leads to higher (lower) expected bank failure rates in the aftermath of credit bubbles (crunches).
- A positive (negative) shift of the asset (deposit) market value function leads individual banks to increase (decrease) lending. An increase in managerial risk preferences results in increases in both lending and portfolio risk.
- An increase in a bank's cost of funds (greater market discipline) will result in a decrease in lending. An increase in the risk-free rate of interest lowers lending and risk for individual banks. If banks expect aggregate lending to decline as well, lending and risk fall even further.

Mondschean & Pecchenino (1995) thus conclude that herd behaviour by banks may both induce and magnify cyclical fluctuations, jointly explaining credit booms and crunches. In Pecchenino (1998) this initial model is further developed for risk averse depositors in order to examine banks' portfolio reallocations induced by idiosyncratic or systemic shocks (e.g. regulatory change) to their local or global market fundamentals or to their tolerance of risk. According to the model, bank managers are again assumed to differ in their tolerance of risk, and to choose the size and risk characteristics of their investment portfolios optimally. The banks take into account the effects on their own return to lending and cost of borrowing of changing their portfolio size and risk, but ignore their effects on other banks and the market. Their actions, however, spill over to affect the actions of other banks. Pecchenino (1998) again concludes that herd behaviour by banks may both induce and magnify cyclical fluctuations and explains the credit crunch in the U.S.A of the early 1990 as a response to the Basel I accord of 1988. Both models provide a very useful framework for discussing the current Basle II changeover. In the following, industry-specific factors that trigger or provide the basis for bank herding are discussed.

3.5 Regime Shifts as Herding Triggers

Groups are more likely to herd if they are sufficiently homogeneous, with each facing the same decision problem (Bikhchandani & Sharma, 2000:13), like a sudden move to deregulation. For example, when financial markets are liberalised, bank competition and the sophistication of financial instruments rises.¹⁴ While the opportunities for risky investment goes up, bank managers may see the franchise value of their banks go down (Ribakova, 2005). For market participants, there is a trade-off between the benefit of waiting and acting, creating "clusters" around first movers (Mondschean & Pecchenino, 1995; Vives, 1996:592; Abiad & Mody, 2005). Changes in the market microstructure, for example a new regulatory regime, usually have consequences for convergence of behaviour and the speed of learning

¹⁴ For a review of forms and triggers of financial reform, see Abiad & Mody, 2005.

(Vives, 1996:597; Pecchenino, 1998). The propensity of analysts to herd thus rises if they lack familiarity with the company's business and environment, for example resulting from liberalisation or deregulation.

Expectations and the frame of reference (e.g. regulatory capital requirements, accountancy regulation, stakeholder interests, decision rules) applied in allocating and pricing risk undoubtedly are of impact to the quality of the decision (Bazerman, 1986). However, what if that experience is wrong or no longer applicable, for example due to regime shifts on the macro-side or due to internal organisational change (micro-level mergers, acquisitions, reengineering and the like), or if every player has the same coach (i.e. consultant) or same „benchmark“ („best practice“, industry leader etc.) to frame and test that experience? Major speculative bubbles are always supported by some plausible popular story, some new “industry wisdom”, a “new area theory” etc. that is regarded as having sanction from some authority (Shiller, 2002). In the face of major parameter shocks, herd-like behaviour is well known among bankers (Walter, 1999). Banks individually optimal responses to regulatory change can lead to herd-like behavior (Pecchenino, 1998). Rapid growth of bank lending frequently derives from herding, credit standards are weakened in phases of euphoria, and some lending is based on speculative rises in asset prices (Llewellyn, 2002). Sifting through the evolution of many bank failures, we generally find that the seeds were sown long before the outburst, as outlined above. Typically, a regime shift will have been perceptible, the degree to which it increased uncertainty was not fully appreciated by strong stakeholders or market participants. The susceptibility to disaster myopia, i.e. the tendency to underestimate the likelihood of high-loss low-probability events (Borio, Furfine & Lowe, 2001:9) increases whenever the respective market environment changes dramatically (Bazerman, 1986), as changes in the market microstructure have implications for convergence and the speed of learning (Vives, 1996). This phenomenon induces individual managers to neglect events which, though large, have only a small probability of occurring and do not readily come to mind as a relevant contingency in case the available decision space was narrowly framed

before. For example, banks that were, or had recently been, state-owned or controlled were a factor in many cases of unsound bank practices and bank crises (Llewellyn, 2002).¹⁵

Most continental European countries financial markets used to be bank oriented, i. e. the banks predominated as financial intermediaries by collecting savings through deposits and providing the bulk of external funding to the non-financial sector (ECB, 2001a). In such a “dedicated” financial system, companies had rather permanent owners with significant stakes and significant owner influence, bank/client relations were relationship driven and prone to privileged information (Porter, 1992). The implementation of the European Unions “internal market program”, reinforced by the inception of the Euro, also brought about a systemic shift towards a “market or securities-oriented” structure in which market-based funding constitutes a significant source of funds to non-financial firms (ECB, 2001a).¹⁶ Such a “liquid” financial system is characterised by transient owners holding fragmented stakes and little influence on the company; valuations are buy/sell driven, bank/company relationships are transaction driven (Porter, 1992). The greater depth of financial balance sheets means that the potential for financial disturbances to seriously affect the macroeconomy has increased (Contact Group on Asset Prices, 2003). As high-quality borrowers deserted banks for the commercial paper and capital market, banks credit portfolio is now geared more towards borrowers with lower credit ratings that are more vulnerable to the business cycle (Greenspan, 2002). Financial liberalisation appears to have led to larger credit cycles, as credit growth become more procyclical (Contact Group on Asset Prices, 2003).

Such regulatory regime shifts may increase the volatility of prices and, by increasing competition, may place pressure on the profitability of established banks whose cost base had expanded under the protection of the rigid legal framework. Banks typical reaction to deregulation is to abandon or severely limit their former, formalised and centralised routines of credit evaluations and to introduce new, simplified, decentralised routines including large, individual credit limits to the local branch or relationship managers so that loan decisions can

¹⁵ For a recent review of the influence of government ownership of banks, see La Porta, Lopez-de-Silanes & Shleifer (2002).

¹⁶ For a detailed description of the systemic shift from bank-centered to capital-market-centered driven financial and governance architecture, see the case study on Finland by Hyytinen, Kuosa & Takalo (2003).

be done quickly in order to meet competition. If governmental deregulation does away industry practice, the banks go along. In the Scandinavian banking crisis of 1987-1994 (e.g. Engwall, 1994; Hutchinson, 2002; Hyytinen, Kuosa & Takalo, 2003) and that of Japan since 1992 (e.g. Ungson, 1998; Shimizu & Ui, 1998), riding on a wave of optimism banks lent massively to projects which had poor long-term prospects. With demand for loans pent up by previous restrictions flowing suddenly into the purchase of assets in relatively fixed supply, once released by deregulation, bank managers without experience of a deregulated financial market overestimated the value of collateral and allowed the quality of their credit portfolios to depreciate (Contact Group on Asset Prices, 2003). In the case of the Swedish crises, bank staff bonuses were primarily related to loan sale volume regardless of the risks attached to these loans. "In retrospect many have realised that neither revenues nor costs are certain, until the loan is repaid" (Engwall 1994:10). The various actors ended up inciting each other to take risks of considerable magnitude. Major changes in the rule set, moves from one regime to another, often creates rather than impedes instability in the transition period (Llewellyn, 2002:170; Abiad & Mody, 2005). Financial deregulation may also contribute to regulatory arbitrage between banks and other financial institutions, including insurance companies (Das, Davies & Podpiera, 2003:20). While we generally argue that too rigid banking regulations have elicited a restricted range of risk taking behaviour ("narrow decision space") we argue here that sudden deregulation may, among others, result in moral hazard and inadequate bank governance, which encourages joint risk-taking and facilitates copycat banking practices. Because of the tight, actor based regulatory set, any new opportunity can only result in common action to exploit that loophole.

Any movement on the side of the bank or the borrower that becomes public will provide a signal to other banks or investors, be it loan extensions or loan contract cancellations. Other lenders will be able to see these signals, profiting from the first bankers outlay on appraisal and monitoring at low cost. Everybody will try to take advantage of everybody else's efforts - the more banks rely on external ratings or make their internal client ratings public, the stronger the trigger to free riding. That sort of signalling activity is strongly

self-sustaining. While a bubble is inflating, lending with “soft budget constraints” seems merely bold, and appropriately well-rewarded (Crook, 2003; Llewellyn, 2002). A worsening credit quality is easily concealed for a while by rising prices of the subject financed or the respective collateral. The growth in lending triggers demand, reinforcing economic growth for some time. After a period of overborrowing, balance sheets may start to look stretched (Siebert, 2002). In fact, they may not have changed at all – what really may have happened is a regime shift in perceptions. Lenders faith is important both in inflating and in bursting the bubble. Bankers and other investors may think enough is enough, borrowers may try to restore financial ratios to something closer to normal (with the perception of normality having changed). Asset sales may rise, prices stop to rise, inflows of capital come under further pressure and may reverse, causing a stampede.

The implementation of some new “*industry wisdom*” like “the new economy” or other “schools of thought” (Crook, 2003) usually is spurred on the organisational level by the recruitment of new personnel with little or no banking background and a total change in the promotion system. In the Scandinavian example, traditionally conservative credit officers and risk analysts were denied promotion, while people oriented towards asset volume growth rose (Engwall, 1994). The application of the shareholder value concept has led to a misinterpretation of the “efficiency frontier”. The best market niche may just be large enough for a single or a very small number of players. If all go into the same niche in a sheep flock strategic behaviour, they may eventually all sink. Contestable markets need mechanisms so that distortions like overcapacity and oversupply can be destroyed. Lemming banking destroys rent seekers’ excess capacity. Examples of this behaviour can be found in the European Union (major German banks snapping up London-based investment banks), the Central European transition countries (privileged firm/bank relationships in abuse of various sources of power) and the U.S. stock markets (where secondary trading can be regarded as transaction cost correcting initially wrong investment decisions). Bankers as a group may take decisions which each individual member of the group would not take. For each member of the group it is easier and less risky to follow rigid rules and to accept misleading guidance than to enter into conflict with the respective peers. Following Llewellyn (2002), the conclusion is drawn that

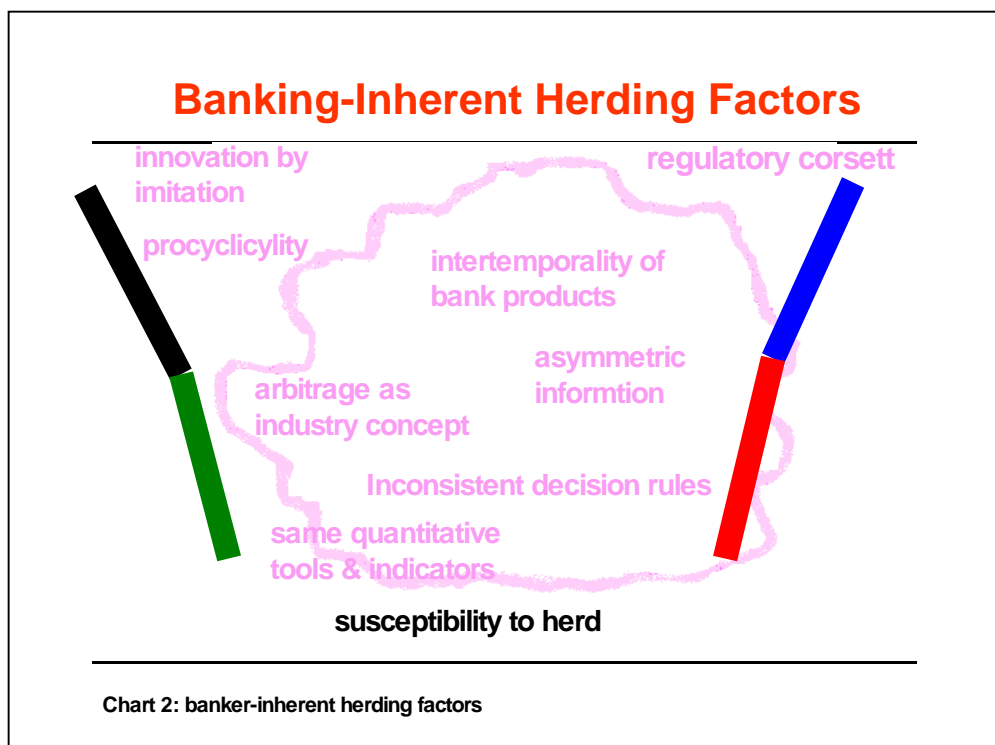
one of the keys to limit herding is to align incentives of the various stakeholders in banks' decision making process, including objectives set by regulators and supervisors and those of the banks; between the strategic decision makers of the bank and the operational levels; and between managers and owners of the banks. When incentives within regulated firms like banks relate to volume rather than their risk-adjusted profitability, there is a clear bias towards writing business.

4. Susceptibility to Herding: the Embedded Market Microstructure of Banks

In the following I will try to explain why bankers (as opposed to other professionals) are susceptible to herding behaviour. What is it about banking business that makes it unique? Managers in the financial services industry are frequently portrayed as being extremely "rational" decision-makers due to the training and use of rational-analytical decision rules, such as discounted cash flow, net present value and other capital budgeting techniques (Brouthers, Brouthers & Werner, 2000). On the other hand, they are frequently charged with colossal losses, misjudgement or that they "hunt in herds" (Walter 1999). What makes finance prone to error? Why is trade in capital more prone to mistakes than trade in goods or services, as is frequently argued (Crook, 2003)? Are there certain industry-specific factors that are inherent to banking business that favour herding? What makes financial markets different is that they are asset markets, trading in streams of payments and spread over time. Buying an asset always includes a bit of guesswork and gambling on the future. Small changes in beliefs about the future can have a surprisingly large effects on the value of the assets concerned. Because asset prices are bets on a uncertain future, they are inherently volatile and represent a natural invitation to herd. Financial markets have short reaction times, adjustments can be implemented quickly, and financial systems are often oligopolistic (Llewellyn, 2002:170).

Banking is an industry that is embedded in a very specific setting, with a mixture of strict actor-based regulation (Roe, 1994), the role of banks in arbitraging transaction costs in an asymmetric information context (monitoring and signalling; Vives, 1991), products that

either allow for sequential trading or are of inter temporal nature including a promise to pay in the future (Gulati, 1995; Biswanger, 1999) and a tendency to fall prey to all kinds of contagious business bubbles, be it Dutch tulips in the 17th century, U.S. thrift deregulation in the 1980s or more recently the Asian crisis (Ungson, 1998; Grünbichler, 2001; Shiller, 2003). Many financial market phenomena either come in waves and/or display fragility (Devenow & Welch, 1996:605). Specific to banking are the high social failure costs and a severe moral hazard problem of unobservable portfolio risk (Ungson, 1998). Mechanisms such as a shrinking number of key market participants, the widespread emulation of certain financing, trading and risk management strategies, and compensation schemes encouraging a short-term focus in decision making are quite entrenched in the structure of the financial industry (BIS Committee on the Gobar Financial System, 1999). This setting imposes boundaries on what financial institutions can do, but also constitutes ranges of opportunity for individual and collective strategies (Andrews & Knoke, 1999; Dacin, Ventresca & Beal, 1999; McGee & Thomas, 1986), draws attention to industry structures (Porter, 1985) and to the legal and regulatory environment and corresponding institutions (Lawrence, 1999).



4.1 Arbitrage as industry concept

Banks very business is arbitration by borrowing funds to lend them out again at higher interest rates, so banks apply that principle wherever possible (Kane, 1981).¹⁷ A bank arbitrages transaction costs by accumulating small deposits into large sums that can be invested economically. Banks also arbitrage diversification risks to its depositors, debtholders and stockholders, given that securities are imperfectly divisible. Bringing willing lenders and willing borrowers together involves processing information and provokes adverse selection and moral hazard. The lender needs to evaluate, whether a would-be borrower is a good risk. However, the most eager borrowers – willing to pay the highest interest rate on the loan – will be the least desirable with higher likelihood to be a bad risk. Moreover, once a borrower has his loan, he may calculate that the greater the risk he takes with the money, the higher the chances of doing very well – while the losses are capped anyway. Banks thus have to be specialists in dealing with adverse selection and moral hazard (Crook, 2003). As arbitrage is so central to banking business, bankers naturally apply that concept to every aspect of business. Any regulation, be it minimum capital requirements, reserve requirements or deposit insurance, therefore will be regarded as an opportunity for regulatory arbitrage (Jones, 2000:38). The tighter that regulation is compared to competing sectors, the more so, as perceived managerial discretion shrinks.

4.2 Imitation as banking industry concept

Mimetic isomorphism may result from organisations seeking standardised responses to ambiguous or uncertain situations (Lawrence, 1999). Banking may be prone to that influence even stronger than other industries, as product imitation is the backbone of financial

¹⁷ Arbitrage has traditionally been defined as „simultaneously buying and selling the same commodity or security in two different markets at different prices, and pocketing a risk-free return“ (Brigham, Gapenski & Erhardt, 1999:1009). As applied here, arbitrage has been used to describe a broader range of activities in recent years, including tax arbitrage (shifting of gains or losses from one tax jurisdiction to another in order to benefit from different tax rates) and risk arbitrage (a speculative process that leads to equality of risk-adjusted returns on different securities, unless market imperfections that hinder that adjustment process exist. See Shapiro (1992:18) or Steiner & Uhlir (2001:37) for broader applications.

innovation in the absence of patent protection or other technical barriers to imitation, as innovations often must be understood by a wide range of users to be successful, and as copycat strategies were frequently applied among regional competitors with regard to internationalisation and the establishment of operations abroad (Biswanger, 1999; Person & Warther, 1997; Ungson, 1998; Walter, 1999). Thus the introduction of a new product generally results relatively quickly in competitors taking it up. This tendency to play “follow-my leader” or “Tit-for-Tat” does not seem to be limited to single products, but appears to occur at a more strategic level as well (Engwall, 1994). It is thus not the macroeconomic business cycle itself that causes banks to expand lending during a boom or cut back on it in a recession, but rather the collective responses by financial market participants, for example to changes in risk over time (Borio, Furfine & Lowe, 2001:1).

4.3 Inconsistent decision rules

The banking systems' behaviour itself amplifies the upturn, thereby increasing the share of lending based on unrealistic prices of collateral and unrealistic price trends at stock markets. A shift in bank views on industry-sectoral, regional or temporal creditworthiness may thus be instantaneously self-fulfilling (Ungson, 1998). The very process of lending for acquisition of goods which can serve as collateral contributes to the temporary success of such "projects" as borrowers bid up the price of land and other property. When the bubble bursts from the strain built up, the banks are coping with a downturn which, at least to a high degree, is of their own making (Rötheli, 2002). Demand and price trends in an economy are not totally exogeneous to the banking system but are partly induced by a rapid growth of bank lending (Llewellyn, 2002). For a short while it seems even profitable when bankers "hunt in herds" (Walter, 1999). However, there is no way out. If the bubble is large there are not enough actors in the financial markets who could purchase extremely overvalued assets.

4.4 Quantitative Tools May Amplify Risk

Several methodological issues are discussed with regard to rating systems that form the basis for credit decisions in the literature. Banks may be overly concerned with static, short-term only, point-in-time ratings instead of dynamic, long-term ratings (Park, 1999; Redak & Tscherteu, 2003; Hahn, 2003; see also the section on procyclicality below). This may lead to undervalue risks in boom phases (overvalue risk in bust phases) and thus induce a macroeconomically negative credit growth (credit crunch; Hahn, 2003), thereby even providing a quantitative basis for behavioural herding.

4.5 Procyclicality Signals of Bank Capital

Risk is often collectively underestimated in booms and overestimated in recessions (Borio, Furfine and Lowe, 2001). According to the Kindleberger (1989) financial instability-hypotheses, there is a tendency for 'excessive' accumulation of debt in boom times, when borrowers appear able to bear higher levels of expenditure and debt, to be corrected thereafter. Credit market imperfections, i.e. information asymmetry between lenders and borrowers, are translated by financial intermediaries to broad and persistent lending cycles, the so-called "financial accelerator effect" (Bernake, Gertler & Gilchrist, 1999; Rajan, 1994).¹⁸ In periods of economic upswing, banks are more willing to extend credit to clients and tend to accumulate lower credit risk provisions on their exposures than would otherwise be reasonable, as they often become overly optimistic about their clients' business prospects. If subsequently the economic situation deteriorates, the solvency of their clients also falls, and banks are suddenly confronted with increased risk provisioning requirements. These factors lead to a decline in banks profitability and capital base, automatically triggering more rigorous credit evaluation and a further squeeze in lending activities (Mérö, 2002:55; Siebert, 2002; Llewellyn, 2002:153).

¹⁸ For a model on business cycles and imperfect competition in product markets see, for example, Pfaffermayr & Weiss (1997).

Downturns in the business cycle can be characterised by more drastic than necessary credit squeezes due to banks herding overreaction and in their behavioural stance affect their level of earnings. Borio, Furine & Lowe (2001) empirically demonstrate this process on ten developed OECD countries for 1980-1999. Borio, Furine & Lowe (2001:9) attribute procyclicality in addition to misperceptions of risk to “actions that, when taken in isolation, may appear reasonable, if not compelling, but that collectively add up to undesirable social outcomes. ... This outcome may result from a failure to internalise the consequences of the actions of others” i.e. herding. Hahn (2001:4) and Borio, Furfine & Lowe (2001:31) argue that upturns are the most critical part of the whole business cycle with regard to banking sector stability. As the potential for unexpected losses is likely to increase as a boom matures, banks may overstretch their credit risk exposure beyond reason (Hahn, 2001).

While it was discussed above that banks' individual credit decisions influence the value of projects, of collateral underlying and thus of aggregate economic cycles, current regulatory capital rules (“Basel I”) treats banks' risks as exogenous (Hahn, 2003:147). That would imply that the credit risk evaluation conducted by one bank is of no influence to credit risk ratings provided by other banks (Hahn, 2003), as most credit rating systems do not explicitly consider the correlations between ratings and how these correlations change over time, i.e. take the risks as exogenous (Park, 1999; Borio, Furfine & Lowe, 2001). This certainly does not hold in reality. Market participants behave in relation to one another, but their credit risk measures do not. Capital constraints may indeed induce tighter lending standards or shrinking balance sheets for a number of institutions at the same time, engendering significant real business-cycle effects (Greenspan, 2002). The more regulatory capital adequacy standards come to depend on banks' own assessment of risk, the more significant these macroeconomic outcomes of microeconomically oriented risk measurement methodologies will be (Borio, Furfine & Lowe, 2001). Given the inherently cyclical nature of banking, what will change is the increased information available to the market, and the way this will in turn raise expectations. Procyclicality is higher in the internal ratings based (IRB)

approach, which allows banks to use own parameter estimates, compared to the standard approach, in which banks have to use supervisory parameters (Redak & Tscherteu, 2003).

Blum (1999), Reisen (1999), the ECB (2001b), Hahn (2001) and Zsámboki (2002), among others, drew attention to the collective and intertemporal implications of risk-based capital adequacy requirements in banking with the undesirable potential to increase rather than decrease banks' risk-taking, thereby further amplifying banks' procyclical behaviour.¹⁹ The Basel II-capital requirements that change over time as the risks pertaining to the related assets increases or decrease will lead to higher borrowing costs in an economic decline, and possibly to a reduced willingness by banks to extend loans (Contact Group on Asset Prices, 2003). Banks might also understate their capital needs in a buoyant part of the economic cycle in order to reduce their capital costs (ECB 2001b:68). The Basle Committee and the European Commission already reacted with efforts to mitigate cyclical effects of regulatory capital requirements. The increase in regulatory capital requirements in time of recession will be lower under the current proposals compare to the initial regulatory suggestions; banks must take a lengthy time horizon in assigning ratings in addition to calculation of one-year expected default frequencies (EDF); banks that apply the internal ratings based approach (IRB) are asked to hold capital buffers over and above minimum capital charges and to carry out cyclicity stress tests (European Commission, 2002; ECB, 2001b; Redak & Tscherteu, 2003). Basel II also addresses the procyclicality issue by requiring time series of at least five years for the calculation of probabilities of default (Redak & Tscherteu, 2003). In the introductory phase, however, only two years apply.

Borio, Furfine & Lowe (2001) argue that methodologies of valuing collateral (the so called loan-to-value ratios, short LTV) that deliver collateral values that move closely with the cycle are likely to generate greater procyclicality.²⁰ Ratings have a further pivotal role in the calculation of regulatory capital requirements. As banks usually apply a "point in the cycle"

¹⁹ The Japanese experience illustrates procyclicality. Under the 1988 Basle I rules, banks in Japan could count as tier 2 capital 45% of the unrealised capital gains from long-held stock. Due to extensive cross-shareholdings, Japanese banks were among the main beneficiaries of the boom in share prices. The share-price boost thus directly transmitted into a lending spree (Contact Group on Asset Prices, 2003:20).

²⁰ In the Basle terminology, collateral is dealt with under „credit risk mitigation“, short CRM. See Redak & Tscherteu (2003:59). For a further discussion on recent trends in collateral use, see Committee on the Global Financial System (2001).

methodology in their loan rating systems, bank rating and credit loss provisions seem to be even more strongly procyclical than those of credit rating agencies that follow the “stable over the business cycle approach” (Borio, Furfine & Lowe, 2001:12; Chami, Khan & Sharma, 2003:13). Standard & Poor’s may adjust ratings with the phases of the cycle (more so for non-investment grade firms), but the range of the ratings usually does not fully mirror the amplitude of the company’s cyclical highs (Standard & Poors, 2003:41). Moody’s acknowledges that recovery rates and default rates of corporate bonds are cyclical (Moody’s Investors Service, 2003). It is thus widely accepted that rating transition matrices are not time homogeneous (Das, Fan & Geng, 2002).

Several suggestions were put forward to mitigate these adverse effects of procyclicality. Hahn (2001, 2003) argues that banks should change their rating approach to seeing through-the-cycle or at least apply longer-term risk management schemes and also turn to dynamic provisioning. For regulators, the suggestion is put forward to raise the overall capital rule above the 8 percent minimum level during a boom (thereby signalling that systematic risk is on the rise) and by lowering the regulatory capital requirements during the following through (Hahn, 2001). This discretionary use of the industry-wide risk sensitive capital ratio is suggested to be best conducted by independent central banks by Hahn (2001), which would give them dual powers in both changing interest rate levels and regulatory bank capital levels at the same. The Contact Group on Asset Prices (2003) similarly suggests dynamic provisioning (i.e. provisions that take account of the cyclical components of credit losses), fair value accounting (where any change in the net present value of an asset or liability is immediately reflected) for loans held on the “banking book” instead of historical accounting as hitherto, and making sure that loans are collateralised to a reasonable extent through the cycle by adjusting “loan-to-value-ratios” (LTV). Persaud (2000) advocates that banks should be encouraged to set aside collateral for systemic risk or to buy liquidity options from central banks during good times. Such a new competitive setting might lead to quite puzzling effects, so further research on that notion is necessary.

4.6 Banks Can Conceal Problems Better

Similar to Lemmings continuing their migration by running around on the seashore and looking for a land crossing for a while, banks can continue their operations because they have the ability to delay loss recognition. Due to the intertemporal nature of banking - most bank products or services include a promise to pay in the future, meaning it can take time until a banks' inability to fulfil its contracts becomes evident - and due to information imperfections - banks real financial health is difficult to assess by outsiders – for a while banks can conceal problems, for example, by rolling over bad loans or by raising more deposits and increasing the size of their balance sheet (Caprio & Klingebiel, 1996), i.e. continue "regular" business with escalating size or risks. Due to “loan seasoning”, observed loan performance problems are minimal until the end of an expansion, then rise dramatically during the downturn (Berger & Udell, 2003). Loan performance problems (past due, nonaccrual, provisions, charge-offs and the like), are only ex-post measures of bank risk taking that materialise with a natural delay. During a phase of optimism, more new loans are granted, thereby reducing the average tenure of volumes outstanding, with young loans being less likely to fail. In times of pessimism, fewer projects seem bankable, fewer loans are issued, and the average loan tenure rises, with more problem loans surfacing (Berger & Udell, 2003). Financial distress of banks can therefore persist for years, further obscured by bankers' ability to make bad loans look good by “evergreening”, i.e. granting new loans to bad borrowers to service their old debt with them.

5. Beyond Basel II: Governance and Regulatory Dialectic in Banking

Bank regulators aim at the perfect regulatory system to avoid fraud and banking crises. In their best efforts regulators have to face the canonical planned economy dilemma: any rule, any macro constraint imposed on decisions and behaviour of agents at the micro level has some undesired side effects. There always is a trade off between regulation and the cost of regulation (Llwelllyn, 2002; Beardsley & Farrell, 2005). Agents are under additional constraints imposed on them by principals, stakeholders, and institutions, but they also have

better information about markets and customers than the macro regulators. According to the regulatory dialectic concept (Kane, 1981), agents optimise their results within the given constraints by exploiting the remaining room for independent decision making. We add to this concept, that the more constraints are put on agents (for example banks) from the macro level, the more similar the behaviour of those agents becomes. When banks' business scope is narrowed down, banks circumvent the rules and move into fields that incur higher systemic risk but allow to make up for the regulatory tax burden. That constitutes one of the not desirable outcomes for regulators: within regulated industries flexibility and capability for portfolio formation and risk management is reduced. Beyond a certain point of regulation the emphasis should be shifted *from regulation to supervision* to keep low the probability of fraud, and *from regulation of actors to regulation of products* in order to provide safety and stability for depositors and equal treatment of the same product irrespective of the organisation which provides that product. The additional cost of tighter regulation is to be compared with the gains achieved from tighter regulation.

5.1 Competition and Regulation as Countervailing Forces

Competition is traditionally referred to as major source of excessive risk taking in banking, resulting in regulation trying to control and govern it (Matutes & Vives, 2000). In the following we argue that the mechanism can also work the other way around: tighter regulation can lead to more risk taking under the circumstances typical for banking. The state and other collective actors usually play a central role in shaping markets and industries via selection of different governance regimes and characteristic industrial policy styles (Evans, 1995; Fligstein, 1996).

According to Porac, Thomas, Wilson, Paton & Kanfer (1995), both strategic issue definition and operating practices are based on industry conceptions of control, drawing attention to industry macrocultures and power relationships of various stakeholders. Applying the DiMaggio (1994) framework between forms of settings that are characteristically constitutive (categories, scripts, conceptions of agency) or predominantly regulative (norms,

values, routines), banks clearly fall under the latter constituency (Twomey, Scherr & Hunt, 1988). Financial markets are exposed to asymmetric information, negative externalities and market power to a much larger extent and to a much higher frequency than any other type of markets.²¹ Particularly the susceptibility to information asymmetries and the potential to trigger systemic crises are main arguments to justify a special regulatory regime for financial markets (Hahn, 2001; Llewellyn, 2002). According to the law and finance view, the legal system is indeed the primary determinant of financial development and financial structure (Levine 2002; La Porta, Lopez-de-Silanes, Shleifer & Vishny, 1998; Olson, 1982).²² These legal constraints lead to herding behaviour, as they put severe bounds on banks' action space. Bounded, discrete, or gapped action space and cognitive constraints are major causes of cascade herding (Hirshleifer & Teoh, 2003:56). There is also a macroprudential side to financial regulation, critically determined by the collective behaviour of individual financial market participants which can run counter to financial regulators' goal set of securing stability, liquidity and efficiency (Hahn, 2001; Contact Group on Asset Prices, 2003). It is therefore argued in the following, that regulators should also include the outcome of collective action to macroeconomic stability and efficiency into consideration.

It is widely acknowledged that company strategies produce both deliberate and unintended, emergent outcomes (Mintzberg & Waters, 1985). In addition to deliberate outcomes of regulation (in the 1930s: improve strength of financial institutions by reducing competition and restricting banks to a limited scope as to geographical outreach and scope of business; Mamutes & Vives, 2000; Roe, 1994), there also emerge side effects from regulation as innovation in products, financial engineering techniques and in organisational forms.²³

²¹ For causes and consequences of asymmetric information, see for example Akerlof (2002).

²² Olson (1982) emphasized that a country's economic policies and the quality of its legal institutions primarily determine its economic performance.

²³ The argument here is based on regulation seeking the protection and benefit of the public at large, i.e. following public interest theory. The specialist interest approach (also termed „economic theory of regulation“) not discussed here further alternatively suggests that regulation does not protect the public at large but only the interests of groups. Whatever consequences a regulatory institution causes, they were deliberately planned by some pivotal actors under that alternative view. See Hägg (1997) and Hantke-Domas (2003) for a broader discussion of theories of regulation. For examples of the impact of regulation on innovation and unintended outcomes, see Firth & Mellor (1999).

Elaborate, detailed, “rule-book-type” regulation can be well intended, but only mildly effective or even counterproductive (Loistl & Hafner, 2002; Kochan, 2002; Beardsley & Farrell, 2005). These unintended consequences of banking regulation became increasingly more important than the intended effects (Kane, 1981).²⁴ In the case of Finland, for example, commercial banks circumvented the tight credit regulation via acquiring finance companies and establishing a parallel (grey lending) market in the early 1980s (Hyytinen, Kuosa & Takalo, 2003:72). Such a possibility of circumventing requirements raises level playing field concerns (Borio, Furine & Lowe, 2001:45). Assimilation of banking-type activities by life insurers that are working under a lighter regulatory regime appears to be a key to systemic vulnerability of financial markets (Das, Davies & Podpiera, 2003).

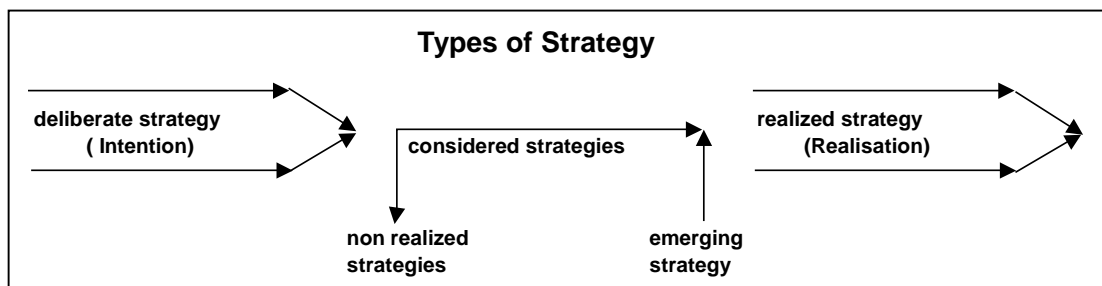


Chart 3: Types of strategy; source: Mintzberg & Waters (1985:258)

Kane’s (1981) framework of regulatory dialectic embodies this interpretative vision of cyclical interaction between political and economic pressures in regulated markets. Political processes of regulation and economic processes of regulatee avoidance as opposing forces adapt continually to each other. This alternating adaptation evolves as a series of lagged responses, repeating stages of regulatory avoidance and re-regulation, and at a differential adaptive capacity.²⁵ Regulatee responses (in our case: by banks) usually come more quickly and regulatory responses come more slowly. Regulators generally can chose to regulate actors, products or markets to build their governance architecture. Banking regulation has a rich

²⁴ According to Barth, Caprio & Levine (1999:12), in the U.S., banking failures were more widespread in the nineteenth century than in other countries due mainly to restrictions on the ability of banks to diversify their loan portfolio geographically. Those limites to geographical expansion (interstate and intrastate branching) were imposed to reduce bank failure, but led to more bank failures than would have otherwise occurred.

²⁵ Kane’s regulatory dialectic framework could also be explained as a special case of the Coase theorem, as whatever the initial assignment of rights to banks, bargaining and off-markets would secure for efficient markets in the long run. See Hägg (1997:340) for a related discussion.

history of tight, actor/institution-based rules. Bank regulators usually close off selected contract opportunities either by direct prohibitions or by balance-sheet and interest-rate restrictions.

Such regulatory moves may be interpreted as a 100-percent tax charged on the income a bank would have earned without that regulation.²⁶ If banking regulation can be seen as a form of taxation, circumventing those rules can be seen like tax evasion. Imposing standards on regulated entities that are tougher than demanded by the market encourages innovative ways of avoiding them (Borio, Furfine & Lowe, 2001:45; Jones, 2000:38). Stricter restrictions on the allowable activities of banks, for example, rather encourage than constrain excessive risk-taking behaviour (Barth, Caprio & Levine 1999:5). In case of the “regulatory tax” imposed by the Basel I rules, banks were quick to react by engaging in activities that exploited the divergence between the true economic risk and the measure of risks embodied in the Basel I regulatory capital requirements (Chami, Khan & Sharma, 2003). The burden of bank regulation increases the rewards for doing things differently per se. Regulation-induced innovation therefore is a predictable economic response to attempts to use legal force to change market conditions.²⁷

In banking markets, circumvention of regulation typically occurs through product substitution (e.g. leasing instead of credit), by installing formally different production processes (going as far as verbal credit contracts instead of printed ones to avoid credit taxes as is the case in Austria), by unbundling and repackaging a portfolios’ risks (for example via asset backed securities, credit derivatives and the like), by re-labeling products (for example by turning loan contracts into the substitute format of privately placed bonds) and by various measures that exploit shortcomings in the measures of total risk appearing in the denominators of regulatory capital ratios.²⁸ Business is thus transferred into less regulated

²⁶ This approach generalises Posner’s (1971) view of regulation as taxation mechanism.

²⁷ For a review of empirical studies on the influence of regulatory taxation on bank behaviour and innovation see Jones (2000:38ff).

²⁸ Regulatory capital arbitrage by the 10 largest US bank holding companies through securitization programs amounted to more than 25% of the institutions’ total risk-weighted loans in 1998. For an in-depth-review of financial techniques applied in regulatory arbitrage, see Jones (2000). Among the major tools applied are the creative use of financial guarantees, of ways of separating the financing from the origination and servicing of whole loans (securitisation) to concentrate credit risk and „cherry pick“; by remote origination, and by indirect credit enhancements.

fields and institutions (Furfine, 2001). One consequence is the trend to by-pass the banking system, leaving the riskier segments of the market with the banks (Schuijjer, 1992). For example, if capital requirements or other regulatory taxes make it too expensive for banks to provide credit, that also implies that the core function of risk intermediation is lost and moves elsewhere. Depositors and investors are forced to incur risk they did not want to, and may not even be able to bear nor truly understand, as exactly this inability is the true cause for elaborate deposit insurance regulation and public bank supervision. Under the pretext of stabilising the system by “bringing in the market”, common depositors are forced into market segments with risk profiles they cannot grasp. Banks’ business scope is jointly narrowed down, respectively the banks are in concert forced into fields they did not intend to actively participate. While systemic stability may have improved on the surface through more sophisticated and surely more expensive provision of credit, that same systemic risk comes in through the backdoor, because the banks are jointly driven into securities markets. Sometimes the outcome of regulation is praised as the victory of the market over “inefficient” institutions, which, however, only became “inefficient” (i.e. constrained) due to regulation. Such joint circumvention activity by market participants generates political pressure for re-regulation (Borio, Furfine & Lowe, 2001).

These regulatory rules, over time and with increasing globalisation, have shown a great deal of convergence across the globe. The fact that all banks share the same constraints and incentives makes banks to act in unison and amplifies market volatility (Baily, Farrel & Land, 2000). At present bank regulators prefer regulating the institution i.e. the banks instead of products, while at the same time deregulating financial markets. Banks thus have become increasingly market-based in the way they conduct their business, and financial innovations like derivatives are eroding the distinction between the various financial institutions (Crook, 2003, Jones 2000). The once sharp distinctions between commercial and investment banking, portfolio management and insurance are blurring. In such a setting, actor regulation narrows the banks' decision space and puts banks into industry disadvantage with competitors, i.e. with other agents on financial services markets that are regulated under different regimes.

Table 4: Case studies on the link between bank herding and regulation

Source	Have man (1993)	Reve (1990)	Engwall (1994); Contact Group on Asset Prices (2003)	Reisen (1999a, 1999b; Reisen & von Maltzan, 1999; Park, 1999; Masson, 1999) ²⁹
Herder	US Thrifts	Norwegian banks	Swedish banks	Foreign banks in Asia 1997/98
Cause	Deregulation during the 1980ies As "Regulation Q" deposit rate ceilings rose, mortgage returns remained contractually fixed. => pressure to venture into higher return assets outside the residential mortgage market. The Depository Institutions Deregulation and Monetary Control Act and the Garn-St. Germain Depository Institutions Act phased out interest rate ceilings and barriers separating banks and thrifts => pressure to decrease dependency on residential mortgages & venture into new product areas ³⁰ .	Deregulation 1984-86 In a hitherto highly restricted market (concession for new offices, no foreign banks, regulated credit interest rates, etc.), these rules were slashed (no restrictions on branching, foreign banks; credit limits and reserve requirements lifted) => board composition remained => no new requirements on risk assessment	Deregulation around 1985 Regulation of interest on deposits abandoned (1978), on liquidity quotas (1983), on lending rates and limits on lending in SKR and foreign bank entry (1985), currency exchange controls (1989) => board composition remained => no new requirements on risk assessment process	Re-Regulation (Basel I) Under the 1988 Basle I accord, short-term bank lending to the emerging markets has been encouraged by a relatively low 20 per cent risk weight, while bank credit to non-OECD banks with a residual maturity of over one year has been discouraged by a 100 per cent risk weight.
Mimetic reaction	=> many thrifts followed Columbia S&L Ass. into corporate securities and State S&L Ass into brokered deposits (i.e. into new client groups, new competitors, new products, new risks) => "pull of imitation" of large and profitable banks that serve as a role models	=> loan decisions were speeded up and loan requirements were lowered => afraid of "being left behind", banks followed "sheep flock behaviour" via market share strategy in the rapidly expanding credit market (+ 100% 1985-1990) without appropriate risk management	Previous restrictions on banks led to a strong pent-up loan demand. Cutting restrictions led to a surge in credit growth, much of which was used to purchase assets in relatively fixed supply. Banks incited each other to take on additional risks.	=> drove foreign banks into cross-border short-term interbank lending and was a major cause for the most recent East Asian financial crises. => rating-induced reinforcement of herd behaviour among market participants
bad loans ³¹	4% non-performing loans of total loans	9%	11%	Thailand: 46%
Cost	3.2% fiscal and quasi-fiscal cost / GDP	8%	4%	Thailand: 42.3

²⁹ Choe et al (1999) similarly report herding by foreign investors before the 1996-97 economic crisis in Korea.

³⁰ For example investment securities, mortgage backed securities and real estate for development & resale; CF =cash flow; S&L = Savings & Loan Association (thrift)

³¹ Data for non-performing loans and costs of restructuring financial sectors: Hoggarth, Reis & Saporta (2002:830).

Regulatory capital arbitrage permits banks to compete effectively with nonbanks in low-risk businesses they would otherwise be forced to exit owing to discriminative capital requirements (Jones, 2000:37). That regulatory approach reduces the generally available continuous action space (containing potentially optimal actions) to discrete action spaces for banks where there “is always a positive probability of herding in a non-optimal action since agents can not fine-tune their actions to their information” (Vives, 1996). When the opportunity sets of market participants differ, herding-type behaviour may arise (Bikhchandani & Sharma, 2000). Non-banks such as insurance firms and corporate conglomerates are buying and trading bank loans under less regulation and lighter capital charges than banks. Insurance companies (which also grant credit, invest in securities and industrial property) can buy banks, but not necessarily the other way around in many countries (Das, Davies & Podpiera, 2003).

5.2 The Basel I and Basel II Accords as Triggers for Herding

It was argued above that as banks are not passive agents, they try to strategically influence their environment by managing the institutional structures within which they compete (Lawrence, 1999) and by exploring and employing their decision room within the actor-based regulation to achieve appropriate performance (Furfine, 2001). The ongoing revision of the Basle-I-rules on capital adequacy and supervisory standards provides a rich example. Only banks are subject to the Bank of International Settlement (BIS) equity standards, there are no comparable international standards for capital markets or the insurance sector (Das, Davies, Podpiera, 2003). According to those internationally applied capital adequacy standards, banks as one type of agents on financial markets must keep a minimum amount of capital in relation to their loans in each category. In theory, the riskier the loans granted, the more capital they must keep. However, within any category there is also a distribution of risk and earnings:

- Under the 1988 Basle I accord, short-term bank lending to the emerging markets has been encouraged by a relatively low 20 per cent risk weight, while bank credit to non-

OECD banks with a residual maturity of over one year has been discouraged by a 100 per cent risk weight. This has stimulated cross-border short-term interbank lending and was a major cause for the most recent East Asian financial crises (Reisen, 2002; Llewellyn, 2002)³².

- Across the “corporate” credit category, an undifferentiated 100% risk weight was applied, similarly shifting bank lending towards the higher risk/return profile.

The banks were induced to shift towards the more risky assets within each category as the capital adequacy standards for all assets within a category are identical but not the returns on these assets, while pricing continued to be undifferentiated by risk in corporate lending (Jackson et al, 1999)³³. By selecting their portfolio, the banks can keep their regulatory capital ratios unchanged, while credit risk has become larger (Jones, 2000). Since the initial Basel I capital standards focused rather on credit risk, banks took on more market and interest rate risk (Chami, Khan & Sharma, 2003). By using the bank capital to originate loans, banks found it profitable to securitize part of the balance sheet and generate fee income (Chami, Khan & Sharma, 2003). By moving securitised assets to legally separate and therefore not consolidated “special purpose vehicles”, banks altered the risk/return-profile in a cost-effective way. As a consequence the asset portfolio that remains on the banks balance sheet usually is less diversified and shows greater loss volatility than the loans a bank has securitised. Banks not only achieve higher regulatory capital ratios in absolute terms, but also relative to the riskiness of the remaining exposures.

Therefore, the current 1988 BIS standards are subject to change in 2007 by introducing higher credit risk sensitivity, by the inclusion of operating risks, tight supervisory reviews and more extensive disclosure rules geared towards strengthening the role of markets in bank governance.³⁴ The more sensitive the banks’ capital calculations are to risk, the more volatile the capital requirements will be. If too many banks require extra capital at the same time, that

³² See Komulainen (2001:13ff) for a review of empirical studies on the Asian crises.

³³ In regulatory capital arbitrage moves, a disproportionate amount of the banks’ credit portfolios’ true underlying credit risk is usually treated as lower-risk weighted assets, or as having been sold to third-party investors (Jones, 2000).

³⁴ For the ongoing discussion on the review of the current Basle Accord, see: <http://www.bis.org>

alone could amplify a business cycle, may cause bank herding and can create new systemic risks (Rothensteiner, 2003). Similar to the unintended side effects of the Basle I (1988) rules, the Basel II (2007) rules might again cause adverse effects and market reactions, according to calls during the fine-tuning of the proposed set of credit risk rules:

- Adverse selection: The least sophisticated banks – those applying the “standardized approach” - may have the biggest incentive for the riskiest types of lending because of the discrepancy in treatment of low-grade and non-rated loans compared to the internal ratings-based (IRB) approach (Nelles & Klusemann, 2003).³⁵ The change from the current to the standard approach will be minimal for them with regard to credit-risk related capital requirements, because non-rated companies will be given the same 100% risk weight. For low-grade loans, the standardized approach demands less risk weight than the foundation approach, implying less capital to be held for lending to the riskiest companies (Bear, Buehler & Pritsch, 2001). Loans to this borrower category will thus be granted by banks with less sophisticated credit-risk assessment skills.
- High-risk borrowers, though possibly at higher interest cost, are better off to stick with banks that apply the standardized approach, because those will be less attuned of turning them down and not providing liquidity (Nelles & Klusemann, 2003). Companies that fear getting a low credit rating may thus choose to avoid obtaining an external rating altogether to circumvent a likely rise in borrowing costs (Bear, Buehler & Pritsch, 2001) or gamble on redemption by picking up even greater risk in order to improve if successful (Crook, 2003).
- Higher risk weights for loans to banks may provide a disincentive for granting those and lead to a possible reduction in inter-bank liquidity (Garside & Pedersen, 2002).

³⁵In addition to credit risk charges, operational risk will also be taxed, the supervisory review process will be revamped („pillar two“) and market discipline (disclosure-based „pillar three“), be given a larger role. Under the standardized approach, banks have to apply risk parameters as specified by eligible credit assessment institutions, with limitations to risk mitigation techniques (collateral) applying. In the foundation internal ratings based approach (IRB-F), banks can use their own probability of default parameters, in the advanced IRB also for the other risk parameters (e.g. loss given default, maturity, credit conversion factors) and wider risk mitigation techniques apply. Special rules apply for small- and medium sized companies (SMEs; ECB (2001b)).

- Regulatory incentives for short-term interbank lending might tilt the structure of speculative-grade developing countries' capital imports towards short-term debt. This would lead to more divergence, rather than convergence, in the cost and cyclicity of bank credit flows between investment grade borrowers, mostly from industrial countries, and sub-investment grade borrowers, mostly placed in emerging and developing countries (Reisen, 2001).
- Non-banking financial institutions that are free from the Basle II regulation may be enticed to enter the market (Garside & Pedersen, 2002; Reisen, 2001:606), thereby evoking level-playing field concerns.
- Eligible credit assessment institutions themselves may also cause a form of moral hazard, as they will be tempted to debase their ratings in order to bring banks to their door (Crook, 2003).

Thus while the Basel II rules were needed to close down the arbitrage opportunities exploited by collateralised loan obligations, asset transfer via asset backed securities and similar transactions that rarely involved any true transfer of risk, again innovative credit products may emerge and the current boom in credit derivatives may be further fuelled (Garside & Pedersen, 2002). "Banks will design assets to fit particular categories of risk, bending whatever connection between a rating applied after the fact and the level of risk" (Crook, 2003:21). Bank regulators have to face the following dilemma: Of course, they could create more and narrower categories. As banks will prefer the risky and more profitable credits within each category whether narrow or wider, regulators finally may find themselves ending up with regulating all individual credits in order to grasp what they want to achieve – if they really wanted that. Alternatively, regulators might prescribe risk distributions. If they could, they might do it for all credits and need not specify risk categories.

Adverse selection – rational on the level of the individual bank which is under pressure to reduce cost - cumulated to an aggressive appetite for risk resulting in unsafe and unsound practices on the aggregate level under the 1988 Basle I regime. This move of many (if not all) major players to follow the same actor-based rules along the same ways and to circumvent

them when possible is a major trigger towards herding behaviour. The frame of action is narrowed by a rigid, actor-based legal framework. When seeking alternatives all behave as in a tunnel, everybody tries to rush to the light that seems to appear in some vague distance. Paradoxically the steps governments (regulators, the BIS) have taken to regulate financial markets, i.e. to make banking systems safer and more efficient can give banks the motive to behave recklessly, increase leverage and can become a cause of bank failures (Crook, 2003). Microprudential regulation has contributed substantially to collective moves and macroeconomic fluctuations which then feed back on individual financial institutions as adverse shocks wrongly seen by regulators as exogenous (Hahn, 2001:7). At this point a first conclusion can be drawn that it is worthwhile to consider two shifts in the regulatory approach applied to banking: (1) From actor-based to product based or to regulate all actors in the financial market the same way when they offer one product identical to others. (2) To include macroprudential considerations in regulation. Otherwise, the banking market may rest “micro efficient but macro inefficient” in analogy to notions on stock markets (Samuelson, 1998). Additional measures might include, among others, requirements for the issuance of subordinated debt (such as uninsured certificates of deposit, in effect debt which will not be recovered if the bank fails) and the implementation of structured early intervention resolution (Crook, 2003). Otherwise interesting new ways of rule evasion are sure to come.

6. Conclusion: Governance Architecture and Conflict Stage

While much of the economics and finance literature mainly focuses on macroeconomic reasons for bank failure and most of the herding literature concerns itself with capital market herding rather than banking, usually solely focused on rational herding, in this paper we conceptualise a broader model to decipher why banks at times respond unanimously with the same disastrous strategy. Drawing on research in fields as diverse as organisational behaviour, strategy, finance and economics, we develop an alternative model, the “bankers’ strategy funnel” to explain the narrowing of banks' frame of action and resulting banking failures. In

our opinion, banks “decision space” containing the repertoire to act can become funnel-shaped and may force banks into herding behaviour under certain conditions: too rigid, actor-bank regulation; prevalence of industry-specific aspects leading to stakeholder-shaped constraints and incentive structures; and regime shifts. When the banking population is too dense and financial markets are overcrowded, bankers as a group may take decisions which each individual member of the group would not take. Lemmings similarly avoid conflict in overly densely populated areas by emigrating into hitherto unaccustomed territory.

The paper attempts to explain mimetic group behaviour of banks by establishing a crossover from the areas of finance and banking (bank failure, Borio, Furfine & Lowe, 2001; credit crunch, Berger & Udell, 1994; Peek & Rosengreen, 1995; strategy, McGee & Thomas, 1986; Persons & Warther, 1997; rational behaviour in efficient markets, Steiner & Uhler, 2001; Rubinstein, 2001) to regulation and governance (law and finance; LaPorta et al 1998; regulatory dialectic; Kane, 1981; governance, Vives 1996) and organisational behaviour principles (embedding, Dacin, Ventrasca & Beal, 1999; herding, Hirshleifer & Teoh, 2003; Shiller, 2003; bounded rationality, Janis, 1992; Kahneman & Tversky, 1979) .

While the final outcome (“banks hunting in herds”) is visible, the relevant parameters only have a low or moderate level of transparency (Ungson, 1998). We thus have to note with caution that the proposed model needs further refinement and empirical validation. Within each set of constraints, several variables are mentioned that need to be weighted and verified. Alternative ordering of the constraints may be considered, and possible interdependencies between incentives and constraints need to be clarified. Spillover effects from other financial market segments into banking may need to be addressed. Nevertheless, the scheme presented might illustrate why all the different factors have to be considered together. For research, this should provide a starting point for further conceptualisations and for analysis of interdependencies between different sets of incentives and constraints, impact of regulation and adverse outcomes.

For practitioners, we have two ideas how to make banks less susceptible to herding behaviour. As major remedy to the initial external herding trigger, we recommend to alter the regulatory approach from actor-based to product based. This will also have an impact on

stakeholders' incentive structures as it brings more fairness into competition between sectors of the financial markets. Accounting standards which target instruments, not institutions, might further level the playing field and remove pressures to circumvent actor-based rules by moving business out into other less regulated segments of financial markets. Cost and outcome of regulation has to be compared with cost and outcome of supervision. Less regulation of agents but better supervision may be an alternative to too tight regulation with undesired outcomes like herding.

To weaken the bank-internal herding triggers, we recommend that banks build in conflict stages and processes to escalate competing views internally. The “dialectical inquiry” technique, for example, introduces a subgroup structure into group interaction to increase the otherwise limited expression of conflict during decision making (Priem, Harrison & Muir, 1995). Schwenk (1988) proposes formalising dissent in the decision process by installing “devils advocates”, i.e. representatives of alternative views, so that the testimony of the “prevailing logic” is challenged. If, however, there is no willingness to risk rejection installed within banks and the actor-based governance structure prevails, we will see further Lemming-type behaviour among banks.

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