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European Institute

Houghton Street | London WC2A 2AE

www.lse.ac.uk

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What did Communication contribute to the Creation of Credibility of the Common Currency?

by

Christian Baden

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ii Abbreviations

A	Austria
ANOVA	Analysis of Variance
B	Belgium
CEPR	Centre for Economic Policy Research
D	Germany
DK	Denmark
DM	Deutsche Mark
E	Spain
EC	European Commission
ECB	European Central Bank
EMI	European Monetary Institute
EMU	European Monetary Union
ESC	European Economic and Social Committee
ESCB	European System of Central Banks
EU	European Union
F	France
FT	Financial Times
GR	Greece
I	Italy
IFO	ifo Institut für Wirtschaftsforschung München
IRL	Ireland
LUX	Luxembourg
MT	Maastricht Treaty
NBER	National Bureau of Economic Research
NL	The Netherlands
OLS	Ordinary Least Squares
P	Portugal
S	Sweden
SF	Finland
UK	United Kingdom

I Introduction & Interest

I.1 Relevance

Money is all about trust. The economic function it serves relies solely on participating actors' confidence that money will be accepted in any future transaction. Money, by making obligations interpersonally, intertemporally and interspatially exchangeable, creates the security needed for complex market interactions in a modern society (Goodhart 1989: 27, Keynon 1981: 20). Trust in money is derived from the sovereign and backed by the state's ability to draw upon the national economy via taxation. If the state guarantees the value of money, there are no reasons to expect that a currency might cease to be accepted (Goodhart 1989: 35). Market participants will readily accept currency as a means of exchange, and store of value. However, this guarantee only secures general acceptability, while some risks remain. Trust in money, therefore, needs to go beyond legal guarantees¹ (Velasco 1996: 1027, Obstfeld 1997: 25ff). Among the remaining insecurities, inflation is the concern of this paper.

Governments or central banks influence money scarcity, and thereby inflation. Political actors interfere directly with monetary policy, create and alter rules governing monetary policy. Whether price-stability is achieved, therefore, is at least partly a political, discretionary decision. Thus, trust in the value of money depends on trust in the issuing authority and those able to influence it, e.g. governments² (Goodhart 1996a: 242, Grabel 2000: 13ff). Distrust and low credibility, however, may impose significant costs onto government policy efficiency, reducing welfare: As remaining risks, e.g. inflation, are priced-in in many kinds of contracts from wages to debt-issuance (Frieden/Jones 1998: 172, Sapir/Buti 2001: 8), inflation-expectations diminish economic-policy impacts, and artificially increase the costs of debt-financed policy actions (Backus/Driffill 1985: 218, Dini 1996: 39). What happens if trust in monetary policy breaks down is illustrated in a number of recent financial crises: The Russians abandoned money for barter in 1998. The British suffered significant purchasing-power loss following 1992's speculations against the Pound. German savers rescued their wealth from expected Euro-inflation, converting it into Schweizer Franken or US-Dollar (Gramberger 1998: 64). Therefore, understanding monetary credibility is crucial (Bini Smaghi 1996: 2f, De Grauwe 1997, van Wijnbergen 1985).

The Euro-introduction is a particularly interesting case to examine the credibility of money. As EMU represented an unprecedented experiment, market-actors' expectations for this new currency were highly uncertain. The guarantors of the Euro's value were problematic at best. A new-born central bank without track record (Bini Smaghi 1996: 2, Backus/Driffill 1985: 212), based on incomplete and partly ambiguous rules (Arrowsmith/Taylor 1996: 3f, Sapir/Buti 2001: 6) had markets speculating wildly over policies, parities and targets (Obstfeld 1997: 25ff, Arrow-

¹ Luhmann (1993: 182) reminds us that trust in a promise (something *will* happen) means actually *more* than in a legal guarantee (something *should* happen).

² Dyson (1994: 254) and King (1995: 1) also include social actors as influential, e.g. via wage setting.

smith/Taylor 1996: 15f, Begg et al. 1997). The degree of de facto ECB-independence was unclear. The EU-governments and economies backing the new money provided neither coherence nor stability themselves: Policy preferences differed visibly, common positions were hard to predict (Gros/Thygesen 1998: 426ff), and every few months some European government faced de-mission through elections (Grabel 2000: 10). Economic expectations for the constituting economies, including the impact of a single currency, were contested (EC 1996: 11). Still, EMU, being both an economic and political project, required trust in political actors and economic conditions. Since the re-sources for such trust were limited, markets had to interpret public statements regarding the Euro's future trajectory³. Complementarily, European policy-makers sought to convince market-participants explicitly via communication measures⁴ (EC 1996, 1998a, 1998b: 6). My focus here will be the question what communication contributed to market-expectations concerning the Euro's value-stability.

1.2 Research question

What did Communication contribute to the creation of credibility of the Common Currency? Three concepts in this question require further explication. First, "communication" is insufficiently precise. In different disciplines, "communication" can be translated into "news" (Lasswell), "social interaction" (Habermas), "information-updating" (Bayes), or else. Even markets "communicate" via prices, and in sociological theory, finally, everything is communication. Here, I refer to political⁵ statements⁶ made in public⁷ by relevant actors⁸ in Euro-introduction. Thereby, I exclude political "action" in a narrower sense, such as rule-making and implementation, from the main focus of this work. Second, "creation" is a theory-loaden concept which requires explicit modeling, as it implies non-mechanical causal relationships (Rey 1999: 22, Ehrmann/Fratzscher 2004: 6). I will provide such a model below. Third, "credibility" needs to be defined⁹ (Renn/Levine 1991: 179, Blinder 1999: 4). Here I refer to credibility as a (psychological) state of mind, informed by (communication) cues, that leads people to stabilize their (economic) expectations based on a (social) relation of trust. The related four key concepts (risk, (communication-)credibility, expectations and trust) will be employed here as complementary elements in a process of complexity-reduction, which identifies expected future developments from entropic possibilities. I will argue that communication performs three crucial purposes in expectation-formation: It structures risk, it validates trust, and it provides the informational base for a cue-based process-

³ On the news-expectations-interaction: Hardouvelis 1988, Antzoulatos/Wilfling 2003: 4

⁴ Rey (1999: 21) argues that policies generally serve two purposes: "to guide the [...] decision making process [...] and to communicate to the public."

⁵ directed at issues of common concern (Habermas), see also Rey 1999: 21

⁶ expressions of personal beliefs, estimates, commitments or preferences; non-descriptive speech

⁷ generally accessible by market-participants

⁸ people who may directly, significantly influence the structure and performance of the institutional framework via function-derived, societal or economic power

⁹ for detailed accounts of advanced definitions, see McCallum 1984: 1f, Nawratil 1997: 15ff

ing of the residual uncertainty. The examination of risk, trust, credibility and expectations provides the structure for this analysis.

1.3 Proceeding

For the estimation of communication-impacts on economic expectations, literature has provided a range of starting points, which I will sketch in chapter II. The review of literature is divided, according to the four aforementioned concepts, into economic, sociological, communication-science and social-psychological approaches. These are forged into one coherent model of credibility-communication in chapter III. Applying (chapter IV) this model to the communication processes in the run-up to the Euro-introduction, I draw upon two main data sources which are described below. On the resulting time-series, I use OLS- and ANOVA-regressions to qualify the model's "fit". The findings from these regressions are reported and analysed in chapter V. Chapter VI explores further improvements of the presented analysis and concludes.

1.4 Time frame

The time-frame selected for analysis covers the period from 1 September 1995 till 31 December 1997. This selection follows from three considerations. First, the impact of communication, as opposed to shifts in "fundamentals" or the legal framework, should be best measurable when little change occurred in the two other respects. While the decisions on the single currency's name, and the Amsterdam Treaty, fall in this time, the former constitutes mainly a communication-event, and the latter comprised few surprises and should be tolerable therefore. Most major agreements and economic shocks happened before or after this time-span (EC 1996: 35, Dosenrode 2002b: 44ff). Second, the debate on the Stability and Growth Pact (SGP), starting in September 1995, was considered a suitable example for discourse-dynamics impacting on inflation-expectations long before the legal impact could be reasonably estimated. Third, this period, according to Financial Times' (FT) archive, was preceded and succeeded by a period of low news-coverage on EMU, so it avoids jumping into or out of an ongoing debate, which might otherwise distort findings.

1.5 Data

For the measurement of communication-impacts on market-expectations, two time-series are required. On one side, the indirect measurement of market-expectations via forward-rates and long-term investment-yields is widely accepted as valid. Here, I use data on 7-10 years' residual-maturity government-bonds issued by Eurozone governments. The calculations and assumptions are given in chapter IV. On the other side, I choose FT's coverage as probably *the* leading newspa-

per in European finance as a proxy for the most important communication events¹⁰. Introducing a theory-based set of variables, I conduct a content-analysis of all articles covering EMU-related statements over the selected time-span. Additionally to the usual credibility-factor analysis known from communication studies, I also take into account the structuring of the discourse on EMU, which evolves around certain perceived risks. Which aspects of EMU were considered problematic can be gathered from news coverage, survey-data and strategic analysis as provided in the European Commission's communication-strategy. Finally, it is necessary to include trust-relations and generalized expectations into the analysis. To cover these intervening variables, I draw upon three additional data-sets: Eurobarometer-surveys (in particular the Mannheim Eurobarometer Trend Data File), IFO-business-climate-index¹¹, and Commission reports on the context of communication-activities and information-demands. This gives me approximately 700 data-points for each of the time-series over 853 days, five Eurobarometer-waves, and several Commission documents¹² as a primary data-basis.

¹⁰ Dyson (1994: 253) indicates FT's leading role on EMU

¹¹ Ehrmann/Fratzcher (2004: 15) find IFO-index to be highly relevant in EMU-expectations.

¹² Mainly the Euro-Paper-series (EC 1995, 1996, 1997a, 1997b, 1998a, 1998b, 2000)

II Theory & Literature

Among the models capturing expectation-formation, rationality (II.1) is clearly the most demanding one in the amount of information-processing it requires. Starting from this, I dig into the underlying structures of complexity-reduction via trust (II.2), credibility (II.3) and risk (II.4), which enable rationalist treatment of the residual uncertainty.

II.1 Economics: Rational Expectations

Conventionally, credibility is defined as an attribute of a policy or policy-maker, indicating a probability that the policy will be carried out, and the policy-maker shows time-consistent behaviour (Bini Smaghi 1996: 2, Faust/Svensson 2001: 373, King 1995: 2). This probability can be measured from market-behaviour. However, such “credibility” is a purely empirical fact (Rose/Svensson 1993: 1). Efforts to qualify credibility from a theoretical perspective have been undertaken by neoclassical scholars, advancing one powerful concept: rational expectations (Blinder 1999: 1f). In this view, market-participants use all available information and deduct predictions concerning future events based on only a handful of rationalist assumptions. Most prominently, incentive time-(in)consistency is used to explain expectations: If an incentive-structure informing the choice of action is expected to change, inconsistent behaviour is anticipated (King 1995: 2). Therefore, to stabilize expectations, one can manipulate incentive-structures, via commitment-technology, such that deviation-costs always outweigh short-time gains¹³. Two more credibility-estimation mechanisms are advanced: Firstly, the idea of credibility-enhancement by delegation traces back to the assumption that only some actors show short-termist, inconsistent behaviour. For technocratic actors, time-horizons are (approximately) infinite, behaviour is strictly rule-based (Dyson 1994: 230ff). Therefore, a political (and thus non-credible (Edwards 2005: 26)) actor can increase credibility by surrendering influence on decisions to a technocratic body (Gabel 2000: 5, Majone 1996: 20). However, in democratic systems, parliaments always may renounce delegation, given sufficiently favourable incentive-structures (Goodhart 1996a: 242, Santer 1996: 47). Thus, delegation can be treated as a special case of commitment. Secondly, some authors claim that policies can be non-credible by nature, because they cannot deliver, whereas “correct” policies are therefore also credible (Bini Smaghi 1996: 2, critical: Neut/Velasco 2003).

These factors are assessed given all available information, yielding an estimate of a policy’s likelihood of being time-consistent. These estimates are then communicated via prices (risk-premia, interest-rates, yields (Goodhart 1989: 85)) and form one aggregate “estimate” representing all information available to all market-participants, and can be considered as near-objective therefore (McCallum 1984: 18).

¹³ This may refer to actual or perceived costs (Bini Smaghi 1996: 24). Here I assume the latter; see also EC 1995.

Many criticisms have been advanced against this model (Grabel 2000: 10f). Political economy, adapting the commitment-technology concept, has enabled an understanding of time-consistency also under unstable and ambiguous incentive-structures, stressing that also seemingly “weak” commitment devices can exert stunningly effective constraints on behaviour (e.g. “reputation costs”, Majone 1996: 2). Organizational theory has pointed to frictions opposing path-deviations, which also foster consistent expectations (Allison/Zelikow 1999: 143ff). The same schools also stress the relative arbitrariness of technocratic rules as theory-dependent (March/Olsen 1989: 21ff, 40ff), being neither apolitical, nor fully rule-bound, particularly in monetary economics (Faust/Svensson 2001: 381f, Gros/Thygesen 1998: 435, Grabel 2000: 14). Also, theory is exposed as an imperfect guide to policy-“correctness” as paradigms are incomplete, relatively arbitrary and subject to systematic doubts themselves (Grabel 2000, Jonung 2002: 22f, De Grauwe/Embrechts/Dewachter 1993: 70, Ireland 2000: 449). The claim of these criticisms is twofold: First, credibility begins far before “hard” sanctioning or delegation technologies start to operate¹⁴. Second, credibility is still questionable under delegation or high constraints: One can override exorbitant disincentives out of conviction or pursuing other goals¹⁵, because of doubts concerning the underlying theory-framework (Lohmann 1992: 277), or if context-change also increases the costs of consistency (Drazen/Masson 1993, Masson 1995). Finally, rational expectations have been criticized for demanding an unrealistically high degree of explicit reasoning. Humans, psychologists claim, have only a limited capability for information-processing (Harris 2004: 39, Renn/Levine 1991: 188). Therefore, estimates do never include all available information, but only a fraction¹⁶. More problematically, it is not so much the amount of information which shapes the result, but the pattern of selectivity applied to available information (Eiser 1986: 215). If individual reasoning may be systematically skewed, such skews multiply upon aggregation (Peters/Covello/McCallum 1997: 6, Edmonds/Kutan 2002: 229). Under not only bounded, but framed rationality aggregate stances don’t reflect near-objectivity but underlying patterns of selectivity (Giovannini 1995: 157).

Despite these criticisms, several insights from the rational-expectations-approach can be made useable for this study. First, the stylized reasoning through which individuals make sense of uncertain situations contributes greatly to understanding credibility. Second, as the dependency of behaviour on incentives and preferences is beyond doubt¹⁷, commitment-technology is clearly relevant for credibility. Third, also the theory-based assessment of policy affects credibility (Frieden/Gros/Jones 1998: 10). However, it is crucial to acknowledge that neither economic incentives nor neoclassic theory provide Archimedean benchmarks for expectations (Good-

¹⁴ Velasco (1996: 1027) stresses credibility’s relevance *particularly* under unclear incentive-structures.

¹⁵ e.g. German Chancellor Kohl’s commitment (Donnelly/Ward 1994: 18)

¹⁶ Under constrained information-availability, this weighs even heavier (Leonard/Arburthnott 2001: x)

¹⁷ Context never determines action, it manipulates incentives. Action remains dependent only on the will to pay costs. Credibility, as trust, always refers to intentions (Luhmann 1979: 41, for examples see Goodhart 1996: 30f).

hart 1989: 329, McNamara 1999: 3ff). The informational base is broader, less reliable, and more selective. The question, however, is how this construction and selection works.

II.2 Sociology: Institutional Trust

Trust and credibility-cues are two such mechanisms. For Sociology, trust is all about the reduction of uncertainty (Luhmann 1979, Majone 1996: 1). Being exposed to uncounted unfamiliar situations humans need to develop simple assumption which guide behaviour, unless contradictory evidence necessitates re-estimation (Luhmann 1979: 4ff, Eiser 1986: 220ff, Renn/Levine 1991: 179). Given bounded rationality and constrained attention, most interactions go ahead without explicit reasoning. The mechanism allowing this is trust. Trust is a relational, not an objective attribute: One cannot “have” trust, one can only be “ascribed” trust by others (Bentele 1994, Majone 1996: 2, Verčič 2000: 317) The relevant concept here is “systemic” trust (Luhmann), which describes the set of generalized assumptions which lead people to expect certain behaviour as appropriate. Such trust builds upon experience, own and reported observations and gathered information. From these, people infer assumptions regarding the “character” of public institutions (Luhmann 1979: 54), expecting politicians to be time-inconsistent, science to provide accurate models, or money to be stable. Thereby, trust founds the suspicion of trustworthiness/honesty and competence/capability for public institutions. However, this is a constructionist process: experience does not “uncover” the real nature of the trusted, but it *makes sense* of their observed behaviour (Rogers 1999: 179, Ruge-Murcia 1995: 177f, Jonung 2002: 27). Therefore, trust doesn’t slavishly follow from “real” events, but is informed by discourse, perception and interpretation (Marcussen 2000, Blinder 1999: 5). Also, trust can be mediated, as trusted people induce trusters to take over their views on third objects (Edwards 2005: 7, Bentele 1994). Expectations regarding unfamiliar situations are most likely to rest upon existing trust-relations to similar or related institutions or actors. These may vary individually, and people derive different expectations concerning the same novel event (Peters/Covello/McCallum 1997: 6, Gamson 1996: 111f, Renn/Levine 1991: 197).

For the individual, trust primarily serves a function of complexity-reduction. By identifying schematized patterns for expectations (Harris 2004: 35, Just/Crigler/Neumann 1996:134), it allows short-cutting explicit reasoning and deriving initial readings of an unfamiliar situations which are, at least, operable (Crigler 1996: 6, Renn/Levine 1991: 190ff). However, this mechanism never solves all the way to expectations, it rather provides the fallback-solution which applies unless deviant evidence requires explicit reasoning. Both operate complementarily. The less trust there is, the more residual complexity must be coped with by rationality (Renn/Levine 1991: 190ff).

However, this is often beyond individual capabilities. Particularly for highly complicated matter (Luhmann 1979: 57), where expectations cannot be fully rationally evaluated, additional

criteria are drawn upon. Expertness advances over character as a basis for trust, “systemic” trust weighs heavy¹⁸ (Sobel 1985, Metlay 1999: 110f, Worcester 2000: 41f).

As for the Euro introduction, this carries obvious implications. First of all, for understanding expectations, it is important to include institutions related and relating to the Euro, inducing people to transfer trust to the new currency. Parallels drawn, testimonials issued and continuities suggested should impact directly on expectations, extending existing patterns of understanding to a new object. Second, the relevance of credibility-communication depends on the problematization of trust-relations. Third, trust is stickier than generally assumed, as people tend to make sense of trusted actors’ actions unless inconsistency is quite blatant.

II.3 Communication: Credibility-factors

One question left open by sociology is what guides people in assigning, transferring or withdrawing trust. The core means employed in the creation of trust is communication (Verčič 2000: 315, Gros/Thygesen 1998: 430, Faust/Svensson 2001: 389, ESC 1998: 42). Communication research defines credibility, deviating from the economists’ definition, as a relational attribute parallel to trust (Renn/Levine: 179ff). Credibility theory applies systemic trust to individual speech acts (Searle 1979: 135f, Allan 1998: chapter 6).

The core of this credibility-concept is that it takes place in a triangular relation between speaker, recipient and message, which refers to some state of the world (Bentele 1988: 408). By inference from systemic trust in society, statements made thereby claim to be relevant and accurate (Habermas 1998: 140, Bach 1998). Whether these claims are accepted by the recipient depends on several evaluation processes. Early authors, focussing on the speaker, identified expertness, character and fairness as core criteria (Peters/Covello/McCallum 1997: 2, Nawratil 1997: 130ff). However, the problem remains that these are unobservable (Jungermann/Pfister/Fischer 1996: 252). Therefore, recent approaches instead focus on the message, without discarding speaker-influences (Nawratil 1997: 20, Keefer/Vlaicu 2005: 7). People, in this view, use easily observable cues to reach conclusions over unobservable states. The mechanism enabling this is systemic trust which designates certain behaviour as appropriate and thereby reduces processed information to the deviation from such expectations (Bach 1998, Allan 1998: chapter 6). Assuming, for instance, that honest speakers would disclose their agendas, hints of a hidden agenda become an indicator of dishonesty. Messages which are shorter than expected without a good reason may appear as an indicator of lacking expertness (Nawratil 1997: 36), or evasive and therefore dishonest behaviour. Nawratil (1997: 242) lists most such cues, which, in varying selections and orderings, are echoed in other studies (Peters/Covello/McCallum 1997: 3f, Nawratil 1997: 145, Cvetkovich 1999: 53ff, Metlay 1999: 101ff, Renn/Levine 1991: 182f, McCallum 1984: 7f). Most accounts include two speaker-factors concerning expertness towards an issue, qualified by relevance (Nawra-

¹⁸ see Einsiedel/Thorne’s (1999: 45ff) “worksharing ignorance”

til 1997: 229), and trustworthiness. Neither is observed directly, but inferred from communicating-behaviour such as detailedness and presentation-dynamics. A second category concerns the message itself, its plausibility given context-knowledge, and coherence within the message. Third, most accounts include a behavioural component measuring whether a claim is (or has been) contradicted by observed behaviour. Finally, context matters threefold: “Sympathy” (perceived fit between the speaker’s and one’s own opinion) has long since been established as a powerful credibility-indicator. The same applies at an aggregate level, as socially accepted arguments appear more credible than statements conflicting with dominant beliefs (Nawratil 1997: 183, 239). Finally, situational appropriateness matters as well.

Generally, credibility-research claims that messages are credible to the degree they conform (social-trust-informed) expectations of appropriate communication-behaviour. Thus, trust and credibility are interrelated: People who trust different institutions, for instance, may regard different statements as credible and assign further trust accordingly. Another consequence is that communication efforts that seek to establish trust in some new institution must use existing belief-systems as a reference value for credibility.

II.4 Social Psychology: Risk

Just as credibility, risk is usually treated as a probability in economics. However, as social psychology points out, much more interesting than this probability is the only seemingly simple question: The probability of what? (Kenyon 1981: 8) In Luhmann’s ingenious terms, risk is foremost a concept that structures complexity. By reducing all possible future states of the world to relatively clear dichotomies (Luhmann 1993: 75, 1979: 24) it directs information-processing and thereby expectation-formation. Furthermore, risk also assigns the labels “baseline/desired” and “deviation/feared” to these possible options, fixing the point of reference for probability estimates (Luhmann 1993: 75, Gamson 1996: 111f, Eiser 1986: 217). The same complex situation can be logically consistently structured in numerous ways. Concrete perceived risks therefore already represent an enormous reduction of uncertainty, transforming random possibilities into expectations of well-defined deviations from well-defined baselines (Luhmann 1993: 102). How these categories are defined depends on learned (causal) hypotheses, that is: theory, discourse and social representations (Luhmann 1993: 75, Dyson 2002: 32, Marcussen 2000: 100, Renn/Levine 1991: 180).

Only risky situations can be influenced by credibility-communication. Credibility is always evaluated given the risk-structure of a situation. It replaces one uncontrollable¹⁹ uncertainty (the future state of the world) by another, more controlled²⁰ uncertainty (whether the speaker utters

¹⁹ Entropy (Oniki 1986: 194)

²⁰ Information (Oniki 1986: 193)

truth, Luhmann 1993: 102, 111ff, 1979: 54, Verčič 2000: 32). While objectively all probabilities are unchanged, expectations are stabilized by the amount of message-credibility and its implications for the risky situation (ESC 1998: 42). Trust continues the same process of complexity-reduction, simplifying the process of believing the speaker, which otherwise depends purely on cues which are, acknowledgedly, imperfect proxies. Through trust, credibility acceptance moves from a random situation, in which all available information must be processed for maximum certainty, to a risky situation, in which the expectation is truthfulness and deviation is one well-defined possibility which can be sufficiently accurately evaluated by shortcut-indicators. Expectations, finally, comprise a highly sophisticated yet largely unconscious iterative process of uncertainty-reduction by complexity-reduction. Only residual uncertainty, defined within clear conceptual boundaries, is dealt with by explicit reasoning in the sense of rational expectations (Renn/Levine 1991: 188, 190ff).

Among all possible developments of a European common currency, risk allows to identify a limited range of options which are defined and categorized as desirable or undesirable. Trust then indicates institutions which are expected to provide relevant and reliable cues regarding these options' likelihood to occur. Credibility allows to monitor statements for indications whether trust is justified. Rational Expectations, finally, process all available information on the residual uncertainties only (Luhmann 1993: 105, Verčič 2000: 55): Whether risk-categories are complete (assessment of theory); whether larger system-context changes (assessment of general (economic) trends); whether trust is justified (assessment of communication credibility); and what is left open by trusted claims concerning the future.

III Model & Hypotheses

Building on the iterative process of complexity-reduction outlined above, I now derive a model for the formation of inflation-expectations in the run-up to EMU. This model identifies the relevant risk-perceptions (III.1), links these to credibility-cues (III.2) and trust-relations (III.3), and finally relates the resulting patterns of credibility-assessment to market inflation-expectations (III.4).

III.1 Perception of Risk

The construction of risks, although an interactive social process, is by no means arbitrary (Luhmann 1993: 185). Media agenda-setting (Gamson 1996: 111f), political programmes and cultural beliefs (Scherbacher-Posé 1999, Vissol et al. 1999: 172) largely define these through a discursive process. The transnational nature of EMU, requiring explicit agreements on a number of key issues, spread discourse on these concerns all over Europe (Gros/Thygesen 1998: 426). Among the most influential sponsors of “risk-perceptions” in the EMU-debate were academic think-tanks (especially CEPR)²¹, the financial press led by FT (Dyson 1994:253), and the monetary-policy community around Bundesbank (Dyson 1994: 251f). Obviously, governments also structured the discourse on EMU, suggesting goal-conflicts or win-win-situations and thereby framing the need for credibility communication. From academic literature, I identify six dominant perceived risks: first, the expectation that EMU will happen at all; second, the expectation that it will start according to the Maastricht Treaty (MT) requirements, on time and based on the criteria; third, the expectation that a particular member-state will participate; fourth, the expectation that EMU’s institutional framework will function well; fifth, the expectation that price-stability will be maintained; and finally, the expectation that economic cycles in Europe will be positively affected by EMU (Jonung 2002: 15).

These risky expectations are interrelated (Arrowsmith/Taylor 1996: 8). I chose here the case of price-stability, because this dimension includes all others as prerequisites: Price-stability, as is highlighted by Jonung (2004: 12ff), could only be maintained if economic cycles in the Eurozone continue harmonically. It requires an operational ECB/ESCB-framework, just as constrained and stable fiscal-policy stances in the Eurozone, as is dictated by MT (and SGP). Finally, all this is only relevant if EMU happens and a state does participate.

Each perceived risk implies a set of assumptions about the conditions requiring (credible) assurance in order to minimize risk. While academic literature provides ample and partially contradictory guidance as to what these conditions should be, however, it is implausible to assume that markets employ these full theoretical frameworks in building their estimates. Instead, they derive from the expert-discourse those key indicators that appear to be crucial for the achievement of high credibility (Jonung 2004: 5, Dyson 1994: 253, beautifully: McNamara 1999: 57). New indi-

²¹ especially CEPR and few other experts (Dyson 1994: 250)

cators may be added, old ones dismissed over time, as issues appear settled or problematic again. The key sources for such conceptual information are experts' publications on EMU, particularly widely-received ones. From the intellectual shifts of focus, as documented in think-tank working-papers or FT-commentaries, one can derive the key indicators against which credibility was assessed at the time.

III.2 Communication of Credibility

Even simple indicators (e.g. ECB-independence) are not easily communicated. Expectations in a political environment needs to account not only for legal codifications, but also for processes how these may be altered (Spaventa 1996: 50), and the intentions and capabilities of those directing these processes (Goodhart 1996a: 242, Keefer/Stasavage 2003: 411, Dyson 1994: 179f). Estimates founded in present socio-economic conditions may be regarded as inappropriate if fundamental changes are expected (Drazen/Masson 1993, Neut/Velasco 2003: 2f). Therefore, the number of potential credibility-relations is quite large (Grabel 2000: 15). Conceptually, at least five actor-groups may sensitively touch expectations on EMU's future trajectory: Firstly, European governments control fiscal policy and can jointly alter legal conditions for EMU. Secondly, EU institutions influence governments' agendas and induce relevant legal developments. Thirdly, ECB controls monetary policy. Fourth, markets have the potential to spoil the whole project if it is seen as non-credible or disadvantageous (Drazen/Masson 1993). Finally, the public's preferences may bind or overthrow governments (Donnelly/Ward 1994: 4, Neut/Velasco 2003: 6, Gros/Thygesen 1992: 419). Due to the markets' long-term perspective, also fundamental changes' likelihoods must be evaluated. For each actor group, another risky question is whether commitments or preferences are based on knowledge that is not overthrown by future observations, or revised due to context-change (Drazen/Masson 1993: 5). For a complete credibility-estimate, actors therefore would need to consider a vast range of highly complex scenarios, and evaluate their relative plausibility according to available information. Table 1 shows the bandwidth of credibility dimensions which are theoretically involved for each actor. Of course, fully rationally evaluating all this is impossible (EC 1996: 14).

Instead, people "problematize" selectively (Peters/Covello/McCallum 1997: 6, Nawratil 1997: 125). Guided by risk-structured and trust-based information on a situation, certain issues go unquestioned unless evidence shatters trust. For instance, commitment to low inflation was considered as crucial in government-credibility, but not for ECB-credibility, which people took for granted. Therefore, it is possible to focus only on a handful of credibility-relations that have experienced constant monitoring by the markets (Peters/Covello/McCallum 1997: 16f, 19, Gamson 1996: 111). From a market perspective, which entails relatively high degrees of explicit rationality, vast monitoring-capability and economic theory as a guide, the following observable credibility-factors are considered to be crucial: For governments, their commitment to austerity interacts

closely with the perceived goal-conformity with other socio-economic policy-goals²² (Pakaslah-ti 1997, Masson 1995, ESC 1998: 32, EC 1997b: 8). These factors are conditional upon a suppor-tive track-record which fosters trust in policy-longevity (Frieden/Jones 1998: 173f). For EMU's architecture, the core issues are ECB's status in defending independence, and the operational consistency and completeness of monetary-policy rules (Bini Smaghi 1996: 2ff, Gros/Thygesen 1992: 420). These actor-credibilities, however, have to be qualified twice: First, the estimate de-pends on a relatively smooth economic development. Expectations of large negative shocks may disrupt credibility of otherwise credible actors (Masson 1995, Lohmann 1992: 277, Donnelly/Ward 1994: 2f). Second, as the construction of actor-roles in EMU is based on a specific eco-nomic-theory paradigm (Marcussen 2000: 104, Dyson 1994: 179f, 230ff, 2002: 18), the credibility of this paradigm also qualifies expectation-stability (Jonung 2002: 22f, Juncker 1996: 59):

$$c_{EMU} = (c_{gov}^{trustworthiness} \cdot c_{gov}^{ext.coherence} \cdot c_{gov}^{pastbehaviour} + c_{ecb}^{expertness} \cdot c_{ecb}^{int.coherence}) + e \mid c_{context}^{apprpr.}, c_{theory}^{apprpr.}$$

The credibility-factors of the same actors are multiplied reflecting the fact that a highly credible commitment by a government known to reshuffle the cabinet every few months may still be low, while assumed policy-longevity reinforces credible commitments (Masson 1995: 575, Drazen/Masson 1993: 11ff). While these factors capture most day-to-day expectation-change, the con-text- and theory-measures should impact less frequent, but strongly on credibility. Disruption of the dominant discourse underlying EMU has a more devastating effect on credibility than imper-fections within the framework's realization (Bini Smaghi 1996: 2ff). The error-term e reflects the obviously approximative nature of the model which doesn't claim to capture all, or even most, relevant factors²³.

Table 1

	Focus	Quality	Indicators
I	Communicator/Actor	1. trustworthiness	conviction, commitment, fairness, openness, honesty, ...
		2. expertness	knowledge, status, position, authority, ...
II	Message/Policy	1. internal coherence	logical contingency, workability, completeness, detailedness, ...
		2. external coherence	goal-conformity, policy-fit, connectedness, ...
III	Behaviour/Record	1. past behaviour	track record, conversions/learning, constancy, ...
		2. observable behaviour	conformity with claims, transparency, ...
IV	Situation/Context	1. appropriateness	situational appropriateness, role-fit, decency, ...
		2. discourse conformity	normative acceptability, theory-conformity, sympathy

source: Nawratil 1997: 242, own restructuring

²² Goal-conformity is context- and theory-dependent (Jonung 2002: 25). For examples see Dosenrode 2002a: 2

²³ De Grauwe/Embrechts/Dewachter (1993: 63) find strong support for no known model.

III.3 Exchange of Trust

The main effect of trust on EMU's credibility is to eliminate risk-relationships from the above equations. While generally quite a few sponsors of trust in the Euro's price-stability can be imagined, not all of these matter enough to require inclusion in the model. One of the main trust-sponsors, the German Bundesbank, for instance, can be safely ignored for its impact is likely to be constant. The problematic relation, instead, is the contested balance between the German government's influence on EMU, and Bundesbank's interest in shaping ECB in its own image. As this balance mainly depends on the government's use of its power to override Bundesbank concerns, the relationship is well captured in the government's credibility-factors. Disregarding also democratic and social trust as constant, and differences in media-trust as non-applicable to only one media-source, this leaves me with four key institutions capable of transferring trust to EMU: First, governments are trusted or distrusted (Jonung 2004: 15), e.g. in the case of newly elected and unfamiliar governments such as in 1997 France. Also, it applies to the late Kohl government in Germany which, from autumn 1997, was increasingly expected to change. Second, ECB and its policy-networks generate trust, given that its problematic aspects are seen as sufficiently solved. Inversely, the French-German quarrel over its first president should have decreased trust in ECB (Charlton 1999: 24). Third, the EU, as an institution and a project, induces people to trust EMU, based on the conviction that EU actors will do everything possible to make it a success (Jonung 2004: 20, EC 1996: 11). Finally, Academia as the provider of causal hypotheses lends much trust to EMU. Perceived academic unity therefore should increase expectation-certainty, while strong deviant views may lead to an increased weight of theory-credibility for EMU-expectations (Dunwoody 1999: 63, Rowan 1999). One fifth candidate, the market, has been dismissed as a trust-donor. First, trust builds upon assumed intentions (Luhmann 1979: 41). As the market has no assumable intention, just one logic (utility-maximization), trust in the market is illogical. Second, the obvious fact that people do "trust the market" in levelling shocks or returning to equilibria does not reflect trust in the market itself, but in the causal assumptions made for individuals' behaviour in aggregate. Therefore, this can be reduced to trust in Academia.

The impact of trust on the presented model is simple to grasp: it de-problematizes factor-bundles in the equation (similar: Ehrmann/Fratzscher 2004: 21). Since a continuous modelling of such trust is beyond the scope of this work, and because no day-to-day continuous data exists on trust, I instead apply the above model to single time-periods (Rey 1999: 19f) in which trust-conditions are assumed to be stable. These periods can be identified from surveys and news-coverage: While certain issues appear frequently in one period, they virtually disappear in others. For the model this means that partial credibility-equations are expected to vary in weight-coefficients for the single factors, reflecting varying trust-relations.

III.4 Application of Expectations

If this model is accurate, it should be able, to a degree, to explain actual inflation expectations for EMU. Since expectations, however, are unobservable, testing this model depends on finding valid proxies for market-expectations. Two main indicators have been introduced by economics: Forward interest-rate spreads and bond-yield spreads (King 1995: 5, Goodhart 1989: 258ff, Buiter/Corsetti/Pesenti 1998: 69ff, Favero et al. 1997). Both are capable of approximating expectations concerning several of the introduced risk-dimensions. For inflation, bonds appear to be the more useful proxy as yields depend directly on the accumulated inflation occurring between issuing and maturing (Goodhart 1989: 258ff, King 1995: 8), and another component reflecting default-risks. As inflation would be unique throughout Euroland, divergences in inflation expectations must be justified by expectations of possible non-membership at the time concerned.²⁴ Default risks, however, may still differ, causing problems in the estimation to the degree that these vary over time (Codogno 2003).

Although many models have been advanced in literature, in nearly all cases the concern was the riskiness of membership, not price-stability. However, since I am less interested in absolute levels, but in change in inflation-expectations, bond-yields allow me to create a crude, yet fully sufficient measure once variation in idiosyncratic and default risk is discounted. Since the latter is difficult to capture from one case alone, I include two governments' bonds in my model: German government bonds serve as the baseline. French bonds are taken as the prime indicator for EMU, since 'there will be no EMU without France' (Brouwers/Kwast-van Duursen/Ruyg 1995: 54, Pakaslahti: 1997: 16).

Deriving inflation-expectations from these time-series, I test my credibility model through OLS- and ANOVA-type regression models. Since obviously communication is only one element in forming market-beliefs, the expectations for R^2 are rather moderate. For the same reason, IFO-index is added to account for general economic trends. Following Ehrmann/Fratzschler's (2004: 11ff) reasoning, I expect standard-errors to be rather large. However, the same study also shows that results are unbiased and clearly valid.

²⁴ For an account of convergence-play see Buiter/Corsetti/Pesenti 1998: 69f

IV Methodology & Data

Having introduced my model, I now fill it with data. Since most variables are still not readily observable, it remains necessary to spell out the theory-based process of data-coding and transformation. The last part of this chapter introduces the regression-models used.

IV.1 Structuring the Situation: Risk-categories

In EMU, economic and political logics are closely intertwined (Lamfalussy 1996: 42, Dosenrode 2002a: 2), leaving observers with complex sets of trade-offs between “pure” economic theory and political judgements concerning social acceptability, executive will, and structural power. However, few core issues occupied most public space. Analyzing these issues, I create indicators for the discrimination between expected and unexpected news. As anticipations are generally “priced-in” immediately, only unanticipated news impacts on credibility (Frenkel 1983: 19, Peters/Covello/McCallum 1997: 19). The categories developed here derive from three sources: First, all CEPR²⁵-papers published during and concerning the transition to EMU have been searched for supposedly particularly problematic issues. Second, the analyzed FT-coverage has been sighted before coding and organized along the most frequent commentary-themes. Third, the results have been (re)structured by the developed model, identifying relations relevant to price-stability. Curiously enough, the risk-relationships are almost purely political uncertainties (Goodhart 1996a: 242). Economic uncertainties are treated, particularly in academic accounts, as results from these, or as random noise from global economic cycles (Goodhart 1989: 338f).

As mentioned above, all six main risks in EMU have some relevance towards price-stability. However, news rarely state that, e.g., the credibility of Italy’s EMU-entry has increased. Rather, news cover events. These are then referred to specific relationships which inform credibility-estimates. I identify here eight such relationships:

First, governments relate to policies. They may link their fate to their success, or treat EMU as a means serving domestic ends. The closer this relationship is, the more credible is the policy. The baseline assumption here appears to be that the German (and arguably Dutch) government will pursue a pure anti-inflationary policy because any inflation-increase would decrease welfare (De Grauwe 1995: 6f, 1996: 10). For France, and most “secure” EMU-candidates (the Benelux-countries), the expectation is that German rigidity will be accepted as the price paid to break Bundesbank’s dominance. These states would not press for rigidity themselves, so their “toughness” should never exceed German demands. For the “ClubMed”-countries (Spain, Portugal, Italy and Greece), the assumption is negative but ambiguous. It comprises some desperate efforts in fiscal consolidation, but also some propensity to fudging criteria. A consensus shift is observable towards more positive expectations, particularly for Spain and Portugal. For the remaining

²⁵ arguably the most relevant think-tank (Dyson 1994: 253); especially De Grauwe 1995, 1996a, 1996b, 1996c, 1996d, 1997, Giovannini 1990, Obstfeld 1997, also NBER-papers McCallum 1984, Drazen/Masson 1993, Rose/Svensson 1993

states (Sweden, Denmark, Finland, Austria, Ireland and UK) expectations are even more ambiguous, as these states are seen as able, but potentially unwilling to join EMU. However, if joining, these should not cause excessive upward pressures on inflation. Their influence on stability-expectations should be marginal (Pakaslahti 1997).

Second, governments relate to power. When governments appear weak, even strong commitments may fail to enhance policy-credibility. This may occur when domestic support crumbles, when oppositions call to power, or when administrative implementation-problems or economic reactions disable the pursuit of a policy. The baseline here is that governments are effective. Deviations are generally negative, although a government e.g. managing domestic opposition surprisingly well may temporarily overshoot the baseline.

Third, European governments relate to each other, forming majorities able to change treaties, or blocking each other creating gridlock. Thereby, they also relate to their agents such as ECB, which are founded by intergovernmental coordination. Given EU heterogeneity, the expectation is that the status quo is stable and collective action will not occur (Keefer/Stasavage 2003: 411, Majone 2000: 288). This baseline is generally neutral: Deviation can be seen as austerity-enhancing (if it occurs to close gaps in the legal framework), or as inflation-pushing (particularly if ECB independence is endangered) (De Grauwe 1996a: 11ff).

Fourth, governments engage in framing of legal and conventional rules. Rules are by no means self-explanatory, but always depend on prevailing interpretations. Particularly ambiguous rules such as the MT requirements for the transition-proceedings are subject to framing (Obstfeld 1997: 25ff, Arrowsmith/Taylor 1996: 3f, Giovannini 1990: 1f). Depending on the expected reading of rules, inflation-expectations may vary considerably (Bini Smaghi 1996: 23). However, this relation goes along with government-policy-relations since framing usually coincides with policy-objectives. Changing frames can be interpreted as early-warnings of policy-changes. The same baselines as above apply.

Fifth, Supranational actors follow agendas similar to governmental policies. Endorsements or abandonments of policy-goals, e.g. an as-large-as-possible EMU, spill back into the political game of selecting the "right" members. For the Commission, expectations hold two convictions: That it will have EMU happen on time, no matter what, and that it prefers a large EMU (Donnelly/Ward 1994: 2f). Therefore, by inference, it has a hidden preference for a lax treaty-interpretation. Both positive and negative deviations from the baseline are imaginable, e.g. unexpected endorsements of rigidity, or explicit calls for relaxation. For ECB, its anti-inflationary determination appears undoubted and will not be problematized.

Sixth, these actors also engage in framing, particularly the Commission and EMI/ECB have great stakes in promoting their rule-interpretations. Again, the connection to policies applies, which simplifies treatment. However, here also EMI appeared as an active contributor to the discourse. The baseline here is clearly a strong commitment to stability.

Seventh, ECB and the European monetary-policy community relate to legal rules as rule-takers. Stating claims about the current legal situation's workability, these actors influence the credibility of ECB's ability to implement its policies. The beliefs here are differentiated, but clear in direction: While it appears unsurprising that problems and gaps remain, it is expected that everything be fixed in time. Reasons to believe otherwise, therefore, should impact negatively.

Eighth, all actors relate to causal hypotheses. This relation lies horizontally across all others, for the above expectations build on certain implied causal assumptions. Nevertheless, actors simultaneously question the completeness, accuracy and applicability of assumptions and eventually reject parts of them (Jonung 2002: 22f). Given the stunning dominance of the sound-money-paradigm in the late 1990es, however, the expectation is clearly a strong, though not necessarily complete theory²⁶ (McNamara 1999: 3ff, Rowan 1999). Although academics regularly hint at ambiguities and missing evidence (De Grauwe 1995, 1996a, 1997, Dyson 1994: 253, Grabel 2000: 7), this scientific doubt rarely surfaced in public discourse (Frieden/Gros/Jones 1998: 6ff).

IV.2 Analyzing Communication: Credibility-factors

Applying these relationships to primary sources is still impossible: News coverage outside expert-commentaries rarely provides theory-informed analysis, but cues. For the conducted content-analysis, I derived 35 coded variables capturing credibility-factor cues. Additionally, five formal attributes were coded. The credibility-cues are based on the above relations and classic message-credibility research. For the analysis a comprehensive coding method was chosen. Assessing over 2000 FT-articles from 1 September 1995 till 31 December 1997²⁷ for news on the coded variables, I derived 8546 entries from 1020 articles found relevant. From these, I calculated news-impacts for each article based on the provided credibility-model and the aforementioned risk-relationships. Since not every day's coverage contained news concerning EMU, I retained 496 valid daily news-aggregates over 853 days. The mathematics of aggregation are provided in annex 2.

Without going into detail, it is important to understand the non-mechanical nature of comprehensive coding (Hayo/Kutan 2004: 7). Given different baseline-assumptions, the same statement may impact quite differently on credibility (Searle 1979: 131ff). German finance minister Waigel saying, for instance, that EMU will start on time and including France and Germany, may, given the economic context of late 1997 and the rigidity-assumption applying for Germany, impact as a statement hinting at a relaxation of the criteria, for otherwise one might expect either a postponement or the failure of both states to meet the criteria (Goodhart 1996b: 30f, for relevance see also De Grauwe 1995: 8). Inflation-expectations should go up, for less fiscal rigidity can be enforced vis-à-vis other EMU-applicants. The same statement by Lamberto Dini, however, may lead markets to recognize the omission of Italy as a participant, inferring that there is no hope for

²⁶ Dyson (2002: 18, 32) claims that discourse formed a "logic of appropriateness" (March/Olsen 1989) for EMU.

²⁷ Selection: see annex 1

Rome to have the criteria sufficiently relaxed. Inflation-expectations should fall (Frenkel 1983: 19). As always with qualitative coding, the core problem is validity. Acknowledging this, it became necessary to explicitly state the main assumptions, which I outlined above. Specific coding-assumptions are included in the code-book, which therefore comprises more theory than pure content-analysis code-books (see annex 1).

Introducing briefly the coded qualitative variables, these are divided into four groups. The first group contains the indicators measuring cues towards government behaviour, coding “commitment”, “goal-conformity” and “observable/past behaviour”. These were differentiated between country-groups, reflecting diverging baseline-assumptions: Germany, the other “Core”-countries (F, B, NL, LUX), the “ClubMed” (E, P, I, GR), and the “Maybes” (DK, S, SF, A, IRL); the UK was coded separately, reflecting its unique position in the debate²⁸, and excluded from the analysis. The second group holds indicators covering the supranational level. The Commission and ECB/EMI are identified as the relevant actors. Since only problematic relations were coded, the Commission indicators code its “commitment” to price-stability and its “expertness”, the latter reflecting its ability to guide others’ perceptions and decisions. ECB appears fourfold: “expertness”, “independence”, “workability” and “Bundesbank continuity”, the latter capturing the relationship between ECB and its main institutional model (Sapir/Buti 2001: 1f). In the same variable-group, three indicators code the readings of MT regarding the “workability” of its legal road-map, the “appropriateness” of the criteria (De Grauwe 1995: 1ff, 1996a: 5), and the expectations for SGP to be operable (Keller 1999: 55, Charlton 1999: 24, Frieden/Jones: 1998: 173f). The third group contains context constraints: Two variables measure social context (endorsement of EMU by Industry/Economy and social actors) (Donnelly/Ward 1994: 4, King 1995: 1), and a third one captures expectations of extreme economic conditions able to unsettle otherwise workable regimes. Finally, a measure for legal progress towards EMU is introduced, in order to retain only communication-impacts in the remaining data²⁹. The fourth group consists of three variables capturing the power of the sound-money-discourse (“contestation”, “gaps in theory”, “status of theory advocates”) (Goodhart 1989: 329), and a fourth one coding whether economic or political logic is seen to carry most explanatory power for EMU.

Regarding formal attributes, each article was assigned a source-credibility accounting for different impacts of reported rumours, claims and facts. Aside the date, also the page and length of the article were coded, type (“note”, “news story”, “feature”, “commentary”) and department labels (“general news”, “politics”, “economy”, “other”) were assigned. These attributes were transformed into a weighting-algorithm reflecting the different relevance of articles. From this, three weighted datasets were created from the raw data: One “opinion”-dataset highlighting analytic, subjective

²⁸ Aside Goodhart’s (1996b: 32) in-and-back-out-scenario no link was found between UK’s EMU-membership and inflation.

²⁹ Some „actions“ at the EU level carry little actual weight but are interpreted as signals triggering communicative, rather than rule-derived impacts (EC: 1995)

and opinionated articles; one “factual”-dataset capturing the impact of political and economic actors’ statements as covered by FT; and one “mix”-dataset containing both aspects. These sets allow me to assess the relative weight of risk-constructing (analytic) versus credibility-informing (reporting) communication in influencing inflation expectations. The calculations are provided in annex 2.

IV.3 Including Social Relations: Institutional Trust

As outlined in the model, trust qualifies the above credibility-values. Due to the limited availability and low frequency of trust-related data, it is impossible to include trust-factors in the mathematical model. However, Eurobarometer-data on trust is available for two relations: perceptions of the EU as an integration-project, and support of the Single Currency. Unfortunately, only few questions concerning trust in EMU-context were asked continuously over the analyzed time-span, the two most interesting questions being dropped from Eurobarometer right before 1995. However, comparative analysis of most trust-related indicators³⁰ reveals a strong tendency towards parallel changes, if not in amplitudes, but in direction. Therefore, support for EMU can be used as a proxy for trust in the Single Currency. Also, the membership-indicators (good/bad thing, beneficial/not beneficial) serve as proxies for the less continuously surveyed “trust in EU institutions”-variables. The data suggests deteriorating trust both in EMU and the EU till June 1997, and recovering values afterwards. However, the improvement after the low point mainly stems from a strong rise in ambiguous perceptions, that is: uncertainty. This means that the impact of the credibility-model should be strongest around spring 1997, hardly stabilizing afterwards, and weakest in fall 1995 (see also Rey 1999: 19). For those institutions not covered by Eurobarometer, I nevertheless include trust based on the following reasoning: After a period dominated by positive or negative news on certain institutions, trust in these should have stabilized. Uniform bad news do not mean uncertainty, but negative (yet stable) expectations (Kasperson/Golding/Kasperson 1999: 38). Uncertainty is instead increased by contradictory news, or such that contradicts held convictions. Therefore, I expect trust to be particularly weak if a previous period showed many coded entries in unclear directions. Impacts of further news should increase. After a period of good news on one actor, impacts should decrease due to improved trust. If the last period showed mainly bad news, I expect some increased uncertainty, but less so than after ambiguous news. In explaining phase-wise changing variable-impacts on market-expectations, I will therefore also look at preceding news-periods.

IV.4 Explaining Market-behaviour: Expectations

Deriving market-expectations for inflation in EMU would be straightforward if one knew the probability markets assign to EMU happening. Using bonds maturing well after 1999, I exclude

³⁰ Mannheim Eurobarometer Trend Data File

postponement-effects from distorting my estimate. Also, close-to-zero spreads against Germany provide an easy indicator for certain EMU-membership (De Grauwe 1996d: 1ff). However, discriminating estimates for the case of EMU from those for non-EMU remains tricky. Several models have been advanced (e.g. De Grauwe 1996d: 9, King 1995), deriving rough (and possibly unreliable, Favero et al. 1997) probability-estimates. Instead of basing a crude calculation on already crude probability-assumptions, I chose another way.

I am mainly interested in changes in inflation-expectations, which, in EMU, must be uniform for all members (King 1995: 15). Therefore, I took two definite members, France and Germany, and derive an approximation of inflation-expectations as follows: Expressing French bond-yields, by OLS-regression, through German yields, and vice versa, I eliminate purely domestic impacts. Taking the daily average of these regressions, I retain variance to the degree that it occurs in both cases, and eliminate such that occurs only in one case and therefore carries the suspicion of being idiosyncratic. The measure is admittedly crude, but it serves its purpose: If markets' estimates for EMU's future inflation-record change, this must by assumption³¹ affect both bonds identically, so it is captured in the created index. Only if coincidentally in both states expectations for non-EMU show parallel changes sufficiently large to impact after being multiplied by the chance of EMU-failure, while expectations for EMU are unchanged, this distorts the measure.

Also the other data series require some handcraft before analysis. While the bond-index shows entries for every working-day, the credibility-indices are often empty. Continuous series have to be created for each index. Taking into account the respective baseline-assumptions, I first recalculate the valid entries such that the assumed expected-value is zero. All values are aligned on an S-curve flat in the ambiguous area and steep on both ends. The formulas are given in annex 2. Second, missing values are replaced by the value of the baseline, which is zero. This is, however, only plausible for the analysis of variance, as news should impact only once on change. For an OLS regressing the French-German average-index, a more plausible assumption is that news-impacts linger on for a while. Therefore, another continuous value-set is created using median values of nearby entries to replace missing values.

Two types of regression are tested in two models each. OLS- and ANOVA-regressions are run for one model (1) including all coded variables, and for the reduced-factor model (2) provided in chapter III.3. I both regress the daily expectation-changes against the baseline-replaced series, and the bond-average-index against the lingering-impact series. All three weighted datasets (opinion, factual, mix) are tested for each combination. The full scheme is given in annex 2. The best-performing results are reported below.

³¹ $E[i] = p_{EMU} \cdot p_{in} \cdot E[i_{EMU}] + (1 - p_{EMU} \cdot p_{in}) \cdot E[i_{out}]$, where p_{EMU} is EMU's likelihood to happen, p_{in} is a state's chance to participate, E denotes expectations and i_{EMU} and i_{out} are inflation-expectations for EMU-participation and non-participation, respectively. For France and Germany, p_{EMU} is identical and p_{in} is unity. Therefore, $\Delta E[i_{EMU}]$ impacts identically.

V Results & Analysis

V.1 Overall model-fit

As predicted, the baseline-datasets perform better explaining change, while the median-datasets perform better explaining expectation-levels, indicating that the crude modelling of lingering-impact is workable. Also, the impact-indicators perform better than the “raw” dataset before the S-curve-transformation. The ANOVAs perform much better on the German-French indicator than on both individual series. OLS extracts more variance from the single series than from the common indicator, but this only reflects the IFO-index’ stronger predictions. Among the weighted samples, the factual-news-set performed best on change, while the mixed-news-dataset outperformed it on expectation levels. The all-factor-model extracts considerably more variance than the reduced model, underlining the relevance of context: without context-indicators, the best-performing analysis of variance missed significance, while including these it reached 0.003 significance-level extracting 6,9% (adjusted: 4%) of variance. The best-fitting OLS reached an R^2 of 0.736 with and 0.615 without context-factors (adjusted 0.729/0.610). While by far most variance is accounted for by IFO-index, the models outperform the index as sole indicator by 16 respectively 4 percentage-points. The two best-performing models’ factor-bearings are reported below.

Table 2

	model 1 change/pure impact factual weighting		model 1 level/lingering impact mix weighting	
	01.09.95 - 31.12.97		01.09.95 - 31.12.97	
	β	<i>signif.</i>	β	<i>signif.</i>
ger	-0.093	0.043	0.031	0.159
core	-0.029	0.547	-0.038	0.098
may	-0.008	0.865	<i>0.056</i>	0.014
med	-0.082	0.073	0.126	0.000
all	0.011	0.815	<i>-0.059</i>	0.008
eu	-0.043	0.401	-0.024	0.269
ecb	-0.065	0.171	<i>0.051</i>	0.025
mt	0.010	0.833	<i>0.059</i>	0.009
the	0.070	0.124	0.015	0.504
soc	-0.015	0.739	-0.030	0.220
leg	-0.043	0.336	0.355	0.000
ext	-0.001	0.070	-0.164	0.000
lax	0.210	0.000	0.036	0.127
pol	-0.020	0.665	0.151	0.000
ifo	-0.035	0.440	0.927	0.000
n	853		853	
R^2	0.069	0.003	0.736	0.000
adj R^2	<i>0.040</i>		0.729	
σ^2	0.269		1.688	

bold: significant at .001-level; *bold italic*: .01-level; *italic*: .1-level

Most parameters show the expected (negative)³² sign. Also unsurprisingly, the change-regression shows much weaker significance, since IFO-index, which artificially increases significance in the level/lingering-impact-regression, is neutral.

V.2 Phase-wise model-fit

Further insight is gained from the division into phases. Seven phases were identified according to the different news-items and credibility-indicators dominating the debate³³. Since baseline-assumptions concerning single indicators are expected to change over time, model-fit should increase for the identified periods, and differences in significance-levels and parameters should relate to acquired trust. Indeed, model-fit improves for most periods. The level-model undercuts its overall performance only in two relatively controversial periods, improving on all others. The change-model performs quite well on phases II and VII, but weaker on the others. Phase-wise analysis reveals two overall findings: First, the analysis is heavily dependent on news-heterogeneity, predicting unambiguous trends well, but losing much power if volatility (controversy) increases. Second, while the state-indicators' factor-bearings generally show the anticipated sign, many parameters for supranational indicators don't. Explanations will be sought in chapter V.3.

Table 3

	model 1 level/lingering impact mix weighting						
	01.09.95 - 31.12.95	01.01.96 - 15.04.96	16.04.96 - 15.10.96	16.10.96 - 31.12.96	01.01.97 - 31.03.97	01.04.97 - 15.07.97	16.07.97 - 31.12.97
	β	β	β	β	β	β	β
ger	0.313	<i>0.170</i>	-0.005	-0.054	-0.129	-0.080	0.085
core	0.007	-0.025	-0.006	0.023	-0.203	0.145	0.115
may	-0.069	<i>0.226</i>	0.024	0.039	-0.082	-0.158	-0.658
med	0.050	<i>0.287</i>	-0.042	-0.205	-0.019	-0.182	-0.411
all	-0.086	-0.094	0.056	0.004	0.017	-0.034	-0.175
eu	-0.048	0.110	-0.022	0.107	-0.180	-0.140	-0.250
ecb	0.037	0.101	0.015	0.060	0.130	0.060	-0.013
mt	-0.056	-0.012	0.005	-0.017	0.423	<i>0.148</i>	0.110
the	-0.269	<i>0.242</i>	-0.011	0.000	0.207	0.680	-0.141
soc	0.000	<i>0.262</i>	<i>0.130</i>	0.071	0.146	0.000	-0.031
leg	<i>0.148</i>	-0.070	.	-0.383	0.657	-0.474	.
ext	<i>0.240</i>	<i>0.180</i>	-0.374	.	.	.	-0.210
lax	0.249	-0.489	0.255	0.217	<i>1.042</i>	0.121	.
pol	-0.030	<i>0.170</i>	0.003	0.436	-0.208	-0.053	0.152
ifo	-0.821	-0.277	1.337	-0.347	<i>0.316</i>	<i>0.441</i>	0.362
n	122	106	183	77	90	106	169
R ²	0.943	0.824	0.911	0.688	0.777	0.776	0.642
adj R ²	0.931	0.783	0.900	0.577	0.712	0.724	0.598
σ^2	0.432	0.679	0.382	0.480	0.630	0.458	0.541

bold: significant at .001-level; bold italic: significant at .01-level; italic: significant at .1-level

³² The higher inflation-expectation, the higher bond-yields, the lower the bond-index

³³ I: 1 September 1995 - 31 December 1995, II: 1 January 1996 - 15 April 1996, III: 16 April 1996 - 15 October 1996, IV: 16 October 1996 - 31 December 1996, V: 1 January 1997 - 31 March 1997, VI: 1 April 1997 - 15 July 1997, VII: 16 July 1997 - 31 December 1997; see annex 3

In the following paragraphs, I will sketch the models' performance in the designed periods, linking the results back to underlying data and theoretical expectations. The regression-results for the level/lingering-impact-model are reported in table 3, the other models' results are given in annex 2.

1 September 1995 – 31 December 1995: Calm progress as usual

In phase one, starting from news confirming most assumed expectation-baselines, little change occurs. Mainly context-variables score high. Theory appears in the debate, impacts significantly but doesn't disturb the overall calm progress. The German indicator is significant, and German news is stable and positive, yielding unambiguous low inflation-expectations. The ClubMed-news-indicator confirms not-too-positive expectations. Everything remains close to zero, which may explain the overall bad prediction of signs. The reading of this phase is that trust is reasonably high, as is confirmed by Eurobarometer. Single outlier-news do not trigger much change.

1 January 1996 – 15 April 1996: Supranational legal base in doubt

Most impacting (i.e. non-baseline-conform) news-events in phase two concern the supranational level, in particular the MT-regulations on rules and criteria for EMU. ECB-credibility drops following doubts over its independence, and is restored through references to the Bundesbank-tradition. However, both impacts are non-significant and with the wrong sign, which needs to be explained. Doubts concerning the economic-theory-base impact significantly, as does the laxity-indicator. Most state-indicators are (near-)significant. While most indicators that were noticeable in phase one diminish reflecting trust, the ClubMed-indicator increases, which can be attributed to unanticipated positive news. Most indicators with low relevance in the news performed as predicted, while the heavily contested news on EU, ECB and MT caused sudden uncertainty, which apparently had expectations behave more hyper-sensitively than the model can capture.

16 April 1996 – 15 October 1996: Settlement and summer-break

Phase three is calm again, not in news-frequency, but in baseline-deviations. The debate from phase two settles for a high credibility of MT and ECB. From Germany, first news arrive indicating possible problems in meeting the criteria, but these are effectively neutralized by strong government-commitments. Only context variables score significantly. State-indicators have the predicted sign, while the European ones don't. Everything suggests that the preceding controversy only temporally diminished trust in the EU. The parameters return to small values. Trust in Germany's commitment may have decreased, which predicts parameters to increase.

16 October 1996 – 31 December 1996: French-German conflict over SGP

Indeed, that is what happens, although mildly so. While French commitment draws heavy doubt in phase four, Germany maintains high commitment, but deviations are more directly punished in inflation-expectations. French credibility-loss pulls down the Commission as well, following a

seemingly tolerant stance in Brussels. ECB-independence requires, and receives, another confirmation. In this highly controversial phase, no index is strongly significant and most remain close to zero, reflecting the much lower predicting-power of the model ($\text{adj.R}^2=0.577$). Again, erratic news from Paris and Brussels apparently encouraged speculations beyond published news. Strong, but expected German commitments cannot reduce uncertainty. If nothing else, this phase suggests that factor-parameters considered crucial should increase, reflecting low trust in most actors.

1 January 1997 – 31 March 1997: Agreement and recovery on lower trust-level

This is clearly the case. Reacting particularly sensitively to news on MT and further agreements, markets reflect the lower certainty attached to EMU's rules' workability, The SGP-compromise is accepted but not cherished. German and Core credibility-levels stabilize above the average, but below old values. Strong significance for all indicators touching EMU's legal base, and some significance plus large parameters for the states confirm this interpretation. Again, the MT-indicator shows the wrong sign, while the others are largely as predicted.

1 April 1997 – 15 July 1997: Problems meeting and maintaining the criteria

In phase six, much volatility sets in again, this time driven by bad performance-news and diminishingly credible commitments from the Core-states, in particular Germany. French credibility-values suffer anticipating government-change, while the ClubMed suddenly looks likely to join EMU due to weakened criteria and good performance in the South. Another debate evolves over MT-credibility, which (together with the ClubMed-indicator) comes closest to significance. Overall model-fit is reasonable, as many indicators reach weak significance around 0.05. Signs are correct, excluding MT and theory. The wide distribution of explanatory power in this phase reflects the sudden change in many believed aspects, following the realization that the main stability-guarantor, Germany, might itself have to bend the criteria, surrendering its ability to stop others from doing the same. Trust is at its low-point, as is confirmed by Eurobarometer. Therefore I expect large parameters for the last phase.

16 July 1997 – 31 December 1997: Emergence of a new consensus

However, this is only partly the case, due to a weak model-fit similar to phase four. Two unlikely indicators, ClubMed and Maybes, are large and significant, most others are weaker but show the correct sign. High controversy explains the bad performance, and the two significant candidates. Being least affected by decreased trust (ClubMed-states' EMU-prospects actually improve through weakened criteria; the Maybes' weak commitments to EMU insulate these from spilling-over trust-crises), these perform well irrespective of the contestation elsewhere. Over time, volatility diminishes and converges towards a new consensus, which assumes high rule-based credibility for the supranational institutions, and mediocre trust in political authorities. The politics-indica-

tor questioning economic-theory-appropriateness surfaces but impacts weakly, suggesting that the new consensus acknowledges EMU's political nature as the new baseline, constructing inflation-fighting credibility through ECB-independence and rule-longevity.

V.3 Interpretation of findings

The above analysis confirms most theoretical expectations and modelling-assumptions in general terms. Political communication, short of political action, does visibly impact on inflation-expectations. The percentage of extracted variance is low, but significant (confirmed: Fornari et al. 2002: 635). The model also shows that not only commitments and statements matter, but so do contexts constraining actors' willingness and ability to deliver on announced policies.

The impact of trust and selective problematizing is confirmed. Parameters indicate more nervous reactions where trust is low. The impact of trust on significance is ambiguous: on the one hand, such issues tend to be treated relatively homogenously, resulting in non-erratic news-indicators and strong significance, as opposed to contested issues where volatility decreases model-fit. On the other hand, as news are relatively infrequent, already minor distortions change parameter-signs and reduce significance. The model performs best for high-frequency, low-ambiguity news. However, several questions remain. The main puzzle is the consistently positive sign on most supranational, and in particular the MT-indicator. "Wrong" signs can be interpreted in two ways. Either supposedly bad news improve expectations, which is implausible, or the baseline is ill-assigned. In this case, if most news is coded close to the baseline (which is more likely for MT's and EU's "ambiguous"-expectations-baseline), minor shifts in the baseline change the sign of relatively many small-magnitude news-impacts. Thus, due to misalignments, many impacts may consistently enter the regression with the "wrong" sign, resulting in an inversion of the parameter sign. In other words, the model requires fine-tuning.

Other aspects requiring adjustment are conditional factor-impacts (such as commitments nullified by context-news), which have not been included above. Also, given better trust-indicators and identifiers for risk-relationships, a more realistic model could include inter-factor-effects, continuous trust-updating and smooth baseline-shifting. Particularly the latter may be responsible for many poor significance-levels. For instance, maintaining the high expectation-assumption for the Core-indicator, while news were dominated by a low-credibility French socialist government, clearly skews the model. Also, the consensus emerging in autumn 1997 is quite different from that measured two years before. The fact that the model extracts most variation towards the beginning, while factor-bearings fit best in the end, may be another effect of this skew.

VI Résumé & Conclusion

V.1 What did communication contribute to the creation of credibility of the common currency?

The most blatant answer to the question of this paper is: at least 16%, which is the amount by which the communication-indices improve IFO-index' explanatory power. Focussing on the systematic contribution, I have shown that communication makes at least three distinct contributions to the formation of inflation-expectations:

First, it informs the construction of risk-categories for the evaluation of uncertain situations. Through the discourse on EMU, market-participants exchanged information on what they considered to be crucial issues in the Euro-introduction. The relative salience of these categories varied over time, as the presented regression-model underlines. In this respect, communication's contribution is twofold: First, it sketches and spreads causal hypotheses concerning the Euro's future behaviour, thereby discriminating potentially problematic scenarios from irrelevant ones. Second, it permanently renegotiates the perceived relative relevance of risks, causing similar statements to trigger quite different market-reactions under different circumstances.

Second, communication provides a mechanism for continuous low-intensity monitoring of such risks currently considered as not acute. By assigning trust, markets allow themselves to disregard certain news for the time being, focussing on the perceived main risks. However, they monitor communication for indications whether trust might be ill-assigned. If news deviates strongly from expectations, trust is withdrawn and reactions become more nervous again. Particularly the loss of confidence in the German and French will and ability to fulfil the deficit-criterion, following bad economic news and speculations over government-changes, illustrates this point. It also demonstrates that trust occurs on different levels, as there is clearly a consensus in the end that both can be trusted to make some effort for stability, but ultimately follow a strategic-political rationale. Thus, communication also contributes to the stabilization of once-established expectations.

Third, communication keeps the markets informed about stated commitments and shared opinions concerning EMU. Assigning credibility-values both to these claims themselves for being honest, and to the implied claims concerning the future for becoming true, market-actors derive their informational base for a subsequent application of some rational-expectations-type reasoning. While true intentions of policy-makers or technocratic agents remain unobservable, communication offers cues for the inference of policies and preferences. As the better performance of the lingering-impact-model shows, such cues are constantly updated given the background of yesterday's news' context (Searle 1979: 131ff). Also, both experts' analyses and statements made by relevant actors impact on market-expectations, as the performances of the "mixed" and "opinion" datasets demonstrate. Keeping in mind that even "factual" news actually refer to claims, not actions, the direct impact of pure communication on expectations is quite considerable.

V.2 Conclusion

As I have shown, communication has one strong, measurable impact on inflation-expectations, which could be called the immediate credibility of the common currency's soundness. It also has an undeniable impact on the stabilization of such expectations, generating trust in the currency's price-stability. Finally, the fact that wondering about the price-stability of the common currency does make sense at all depends on communication. Hadn't some meta-discourse established in advance that, among the relevant dangers to EMU, inflation was crucial, this dissertation would be pointless. What I did here is to systematize and model these three steps of communicative complexity-reduction. I have proved the relevance and utility of such a model by empirical analysis. For the understanding of market-expectations under high uncertainty, I thus have provided a model which exceeds the complexity of most approaches advanced so far, both in the range of processed information, and the explicitness of the causal modelling. What I did *not* do here is to question or qualify the implied causal hypotheses. I have no claim to make on whether the sound-money-paradigm is a useful guide to modelling and understanding monetary economics, but I can claim that it is a useful guide to understanding and modelling market reactions to communication in the run-up to EMU. In demonstrating the power of my model of complexity-reduction, and in spelling out the implied assumptions, I have tried to contribute to a more thorough understanding of credibility particularly in economics. Yet the model leaves much room for refinement: Baseline fine-tuning, continuous trust-modelling, regressions against other expectation-measures, extensions of the empirical basis, a validation of coding-reliability and many more improvements can be made to increase the value of this model. Beyond that, however, the most important claim can be made already on the basis of this paper: What matters for the assignment of credibility is no full, unbiased, and rational estimation of known facts, but a wide range of unquestioned, yet questionable, assumptions structuring expectations, and a small selection of cues indicating deviations from expected behaviour. Theory, not essence, and communicated claims, not held preferences, guide the formation of expectations.

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