Central Bank Transparency and Financial Stability: Measurement, Determinants and Effects

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Abstract

We develop a comprehensive index of the transparency of central banks regarding their policy framework to promote financial stability for 110 countries from 2000 to 2011 and examine the determinants and effects of this transparency. We find that the degree of transparency increased in the 2000s, though it still varied greatly across the countries in our study. Our regression results suggest that more developed countries exhibit greater transparency, that episodes of high financial stress have a negative effect on transparency and that the legal origin matters, too. Importantly, we find that the level of transparency regarding the financial stability is strongly affected by monetary policy transparency. The central banks that have a transparent monetary policy are more likely to show increased transparency in their framework for financial stability. Our results also suggest a non-linear effect of central bank financial stability transparency on financial stress. Unless the financial sector experiences severe distress, greater transparency is beneficial for financial stability.

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Keywords: financial stability, transparency, central banks

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of the Czech Republic P402/12/1993. The financial stability transparency index is available from the authors upon request or directly downloadable from http://ies.fsv.cuni.cz/en/staff/horvath.

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1 Introduction

The recent theoretical literature on the welfare effects of public information has caused some skepticism about the benefits of central bank transparency (Morris and Shin, 2002). The results of Morris and Shin (2002) have been strengthened by James and Lawler (2011), who show that transparency unambiguously decreases welfare regardless of the model parameters. However, the predictions of the theoretical models regarding the adverse effects of central bank transparency are in sharp contrast with the actual data. Central banks around the world have increased the transparency of their monetary policies in the last two decades. Based on the monetary policy transparency index for 110 countries from 1998 to 2006, Dincer and Eichengreen (2009) find that there is almost no occasion that causes central banks to decrease the degree of their monetary policy transparency. In this paper, we construct a central banks' financial stability transparency index for 110 countries from 2000 to 2011, update the monetary policy transparency index by Dincer and Eichengreen (2009) through 2011 and find that central banks have been continuously increasing their transparency in both their monetary policies and financial stability frameworks. Reversals in the trend towards greater transparency have been extremely rare. In a similar vein, Crowe (2010) finds that better public information does not decrease the accuracy of private forecasts.

To contribute to this transparency literature, we examine what has caused central banks to increase the transparency of their frameworks to promote financial stability (for simplicity, we call this type of transparency financial stability transparency). Next, we address whether greater financial stability transparency is, in fact, beneficial. Although several studies have investigated the determinants and effects of monetary policy transparency (Dincer and Eichengreen, 2009, among others), this evidence is missing for financial stability transparency. Oosterloo et al. (2007) and Cihak et al. (2012) focus on one particular aspect of financial stability transparency, the publication of financial stability reports (FSRs). In addition, Cihak et al. (2012) provides a framework to evaluate the quality of financial stability reports, but the evidence of the effect of quality ratings offers only limited support that financial stability transparency is beneficial. In contrast to these two studies, we develop a comprehensive financial stability transparency index that focuses not only on the coverage of financial stability reports but also on other communication channels, decision-making procedures and underlying legal aspects.

In addition, we focus on the effect of central bank transparency in a more complete manner. To our knowledge, previous literature examined only the effects of monetary policy transparency. We explore the interactions between the transparency in monetary policy and financial stability, as there are several plausible reasons why transparency in these two areas is likely to be related. Monetary policy transparency increased substantially during the last two decades, and this trend in monetary policy transparency preceded that of financial stability. The first central banks were assigned the role of safeguarding financial stability in the late 1990s or later. If the central bank makes a decision to communicate more openly about its monetary policy, this may create an impetus to increase transparency in other areas of central bank activities, such as in promoting financial stability. The underlying reason may be the ambition of central banks to communicate consistently (Blinder et al., 2009).

Our results suggest that most central banks have continuously become more transparent in their communication on issues related to financial stability. In general, more developed countries, especially those with Nordic or German legal origin, exhibit more transparent communications regarding financial stability. The degree of financial stability transparency depends strongly on the previous experiences with transparent communications regarding the bank's monetary policy. Periods of high financial stress in the past are found to have a negative effect on financial stability transparency. These results are robust to a number of sensitivity checks, such as those addressing the sample selection issues or those using an alternative measure of financial stability transparency. Importantly, our results suggest that financial stability transparency is beneficial in 'normal' times and is associated with lower financial stress and fewer bad loans. On the other hand, we find evidence that the transparent dissemination of information regarding financial stability risks has adverse effects on the stability of the financial system during periods of severe financial distress. In this case, increasing financial stability transparency may actually escalate the crisis.

This paper is organized as follows. Section 2 discusses reasons why central banks publish financial stability reports, develops the financial stability transparency indices and presents the resulting indices. Section 3 presents the regression results on the determinants of financial stability transparency. Section 4 gives empirical evidence on whether greater financial stability transparency reduces the risks of financial instability. Section 5 concludes the paper. An appendix with additional regression results and the financial stability transparency index at the country level follow.

2 Central Bank Transparency Index on Financial Stability

First, this section focuses on the financial stability reports published by central banks, as they are an integral part of financial stability communications and they strongly influence the degree of central bank transparency on financial stability issues. Second, this section provides the details on the construction of our financial stability transparency index. Third, the resulting indices are presented and discussed.

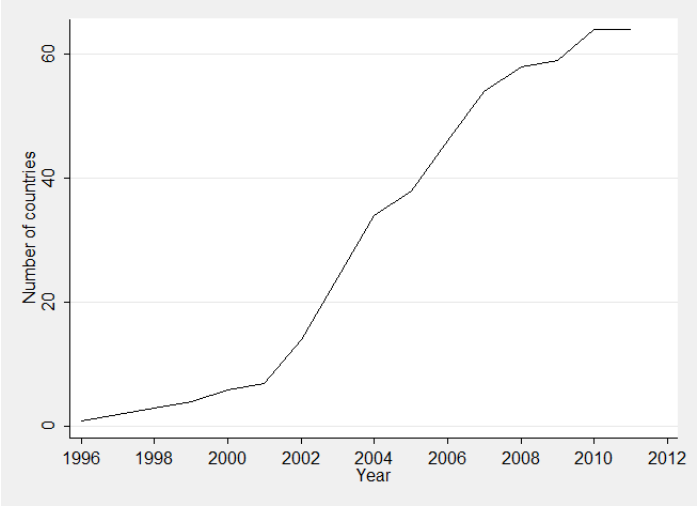
2.1 Financial Stability Reports: Why Publish Them?

Many central banks around the world publish financial stability reports (FSRs) and use them as their main communication channel regarding their financial stability. The Bank of England, for example, characterizes the purpose of its FSR as a means to identify the major risks to the UK financial system and to thereby help financial firms, authorities and the wider public manage and prepare for these risks. The Swedish Riksbank states that "*... FSRs present the overall assessment of risks and threats to the financial system and an evaluation of the capacity for coping with them [. . .] By making the analysis available to financial market participants and other interested parties, we can share our viewpoints and contribute to the debate on this subject.*" Accordingly, Born et al. (2012) suggested that one important reason why FSRs are published is to effectively guide the markets and reduce noise.

The first countries to publish FSRs were the UK and the Scandinavian countries, specifically Sweden and Norway. In 1997, Sweden became the first country to published a separate document about its financial stability, later called the FSR. Andersson (2008) contends that the main reason countries began to publish their FSRs was related to the financial crisis of the early 1990s.

Figure 1 presents the number of countries publishing their FSRs between 1996 and 2011. It further shows that the first FSRs appeared in the late 1990s. The publication of FSRs by central banks became more common in the 2000s, and currently, more than 60 countries publish an FSR, the vast majority of which are published by developed countries. Except Ireland, Greece and the USA, all OECD countries currently publish their FSRs. The unavailability of the FSRs from the USA is related to the institutional setting of financial sector

Figure 1: **The Number of Countries Publishing the Financial Stability Report**



supervision.[1] With respect to Ireland and Greece, the FSRs were, at one time, available, but central banks stopped publishing these reports during the current global financial crisis.

Cihak (2006) documents that most of the assessments in the FSRs prior to the recent crisis have been positive (96% of FSRs assess the financial sector as "in good shape," in "solid shape," or "improving"). Born et al. (2012) examine the optimism of FSRs and find that the degree of optimism was rising during the 2000s, until the outbreak of the financial crisis. Therefore, Breuer et al. (2011) and Franta et al. (2012) suggested that sufficiently adverse scenarios for financial sector stress tests are needed to credibly evaluate financial stability and to propose methods on how to quantitatively assess the level of conservatism of the stress tests.

In this paper, we examine the FSRs published by central banks.[2] The FSRs typically begin with an executive summary of the general assessment of finan-

[1]The FED is not responsible for financial stability. This role is delegated to the Financial Stability Oversight Council (FSOC) operating under the Treasury. The FSOC publishes an annual report in which the content is very similar to that of the FSRs published by the central banks. Because we focus on central bank communications regarding financial stability, we do not further examine the report of the FSOC (see Cihak et al., 2012, for further discussion of the US experience). Nevertheless, our econometric framework addresses the sample selection issues related to the fact that some central banks are not assigned the responsibility of promoting financial stability.

[2]FSRs are sometimes termed Financial Stability Reviews or Financial Market Reports. The financial stability reports by international organizations or private firms are not considered.

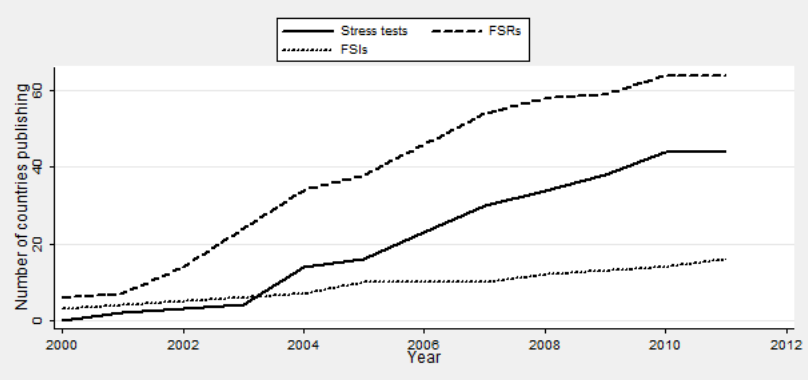
cial stability and potential risks. The FSRs then continue with the core analytical aspects, which cover the macroeconomic environment and risks and contain information about various types of institutions (such as deposit takers) and markets important for financial stability. Other FSRs also publish several policy-oriented articles on financial stability. There are some central banks, that cover only the analytical aspects (e.g. Norway), while others publish only policy-oriented articles (e.g., France); however, those that cover the analytical aspects are more common than those that cover only policy-oriented articles. The FSRs almost always contain an analysis of the banking sector. Nonetheless, other financial sectors, such as the non-banking financial sector, real estate, corporations and households, are also frequently part of the FSRs.

The analytical portion of the FSR typically contains three types of indicators to assess stability: soundness indicators, stress tests and market-based indicators. Using these indicators, the report should cover all main risks (credit risk, contagion risk, interest rate risk, liquidity risk, exchange rate risk, payment or settlement risk) present in the financial markets. The soundness indicators are a set of macro-prudential indicators that describe the financial health by aggregating indicators from individual financial institutions. As a general rule, the (sub)set of financial soundness indicators proposed by the IMF is used. An increasing number of central banks have also begun to publish stress tests in their FSRs to assess the stability of the financial system. Figure 2 reports the number of central banks that publish stress tests and financial stability indicators within their FSRs. The number of these central banks has been continuously increasing during the 2000s.

Market-based indicators are also covered in the FSRs, as they provide useful forward-looking information regarding potential risks. This group of indicators is typically comprised of the stock market prices of financial institutions, the volatility in share prices, the distance to default, the probability of default and/or distance to insolvency, various ratings, bond prices and option prices.

Clearly, one way to evaluate the quality of FSRs is to focus on clarity, consistency and thoroughness of these reports (Cihak, 2006 or Cihak et al., 2012). In this paper, we mainly focus on the coverage of the FSRs because it requires less subjective assessments and is more tractable, thus allowing us to evaluate the FSRs for a wide set of countries.

Figure 2: **The Number of Countries Publishing Stress Tests and Financial Stability Indicators**



2.2 Financial Stability Transparency Index - Construction

This sub-section presents the construction of our index and its main descriptive statistics. We propose the newly constructed financial stability transparency (FST) index to be the sum of the following 12 items (the number of points granted for each category is indicated in parentheses):

1. The publication of the FSR (0 - not published; 1 - published)
2. The publication of the FSR - frequency (0 - not published; 1/2 - published annually; 1 - published semi-annually or more often)
3. The FSR is forward looking (0 - not forward looking, 1 - includes outlooks and forecasts of risks)
4. The coverage of the FSR (in total, a max. of 1.5 points)
   (a) Macroeconomic environment and its risks (1/2 if included)
   (b) Deposit takers information and its risks (1/2 if included)
   (c) Other subjects or market information and risks (1/2 if included)
5. The goal of financial stability is explicitly stated in the central bank act (0 - not stated, 1 - explicitly stated)
6. The publication of stress test (0 - stress test not published, 1/2 published annually, 1 - published more often)

7. The publication of FSIs (0 - not published, 1/2 - core set of FSIs published, 1 - both core and encouraged set published)

8. Macro–prudential policy transparency (0 - not described, 1/2 - general strategy and co-operation described, 1 - detailed policy and crisis management described)

9. The existence of a financial stability policy) committee (0 - no committee, 1 - committee with regular meetings and clear strategy)

10. A separate section on financial stability on the central bank's website (0 - no separate page (section) on web, 1 - separate page on the web)

11. A separate section (database) on the central bank's website for speeches about financial stability (0 - no separate section, 1/2 separate section)

An important component of our index is the periodicity and coverage of the FSRs (items 1 through 4 of our index), which can earn 4.5 out of 11 index points, the maximum value of the index. While only a minority of central banks published their FSRs at the beginning of our sample (e.g., in 2000), the number of central banks publishing this report increased to more than one-half of our sample in 2011 (see also Figure 1). If the FSR is published, it is typically published once or twice a year. A few central banks publish the report more frequently, however. In the case of more frequent FSRs, we decided to assign one point for the value of the index and for the semi-annual frequency for two reasons. First, we do not believe that more frequent FSRs increase the transparency substantially, and second, these reports are usually more concise. In total, 64 countries published FSRs in 2011, out of which 31 countries published FSRs annually, and 33 countries published FSRs semi-annually or more often.

With respect to the forward-looking feature of the report (item 3), we assigned a value of one to FSRs featuring forecasts about the most important risks to financial stability. The coverage of FSRs (item 4) is evaluated according to whether all important segments of the financial sector are covered. One-half of a point is assigned for each separate chapter in the FSRs discussing the macroeconomic environment and risks, the information and risks related to deposit takers and other subject information and risks (such as households and corporations). The average score in 2011 for the content of the report was 0.72 out of 1.5 points.

With respect to the goal of financial stability in the central bank act (item 5), a country is given one point if the central bank act clearly states that the

central bank is responsible for promoting financial stability. Interestingly, there are many central banks that publish financial stability reports, but the act does not stipulate that the central bank should contribute to financial stability. As of 2011, 48 countries out of 110 mention financial stability mentioned in the central bank act. In addition, 28 central banks do not mention financial stability in the central bank act and receive zero points for all other variables underlying the FST index. In our regression analysis, we examine whether our results are robust if we exclude these 28 countries and if we formally address sample selection issues using the Heckman estimator.[3]

The publication of macro stress tests is an important feature of transparency (item 6), as it gives a quantitative assessment of the ability of financial sector to withstand large negative shocks. The value of 0 is given, if the stress tests are not published. One half is for the stress tests published annualy and the value of one is assigned, when stress tests are published more often than annualy. Our results show that 33 countries scored one point in 2011 for this item and more than 40 central banks publish stress tests (see Figure 2).

We consider the publication of the financial soundness indicators (FSIs) important because it offers a unique standardized measure of the current conditions of financial institutions (item 7).[4] The IMF classifies the FSIs into two categories: 1) core set and 2) encouraged set. We assign a value of one-half to those central banks that published the core set and a value of one to those that published both the core and the encouraged set. Some central banks publish these indicators on their website but do not include them (or include only selected indicators) in the FSR. Only 12 countries published the core set in 2011, and half of them also published the encouraged set on the central bank website.

Transparency regarding macroprudential policy is an additional element of our index (item 8). If the macroprudential policy framework is described on the central bank's website, the country earns 0.5 points for the index. To obtain

[3]On the one hand, the value of 0 in the FST index suggests that the central bank is not responsible for financial stability. On the other hand, the ambition of all central banks is to contribute to price and economic stability. Clearly, as both price and economic stability are influenced by financial stability, it can be argued that central banks are at least indirectly concerned about financial stability. This view is supported by Kevin Warsh, who stated in his speech delivered at the New York State Economic Association Annual Conference on October 5, 2007, that "*It is worth emphasizing that the Federal Reserve's concern with financial stability stems largely from the adverse implications of financial instability for overall economic performance. The Fed's interest in promoting financial stability is thus intimately connected with its macroeconomic objectives: maximum sustainable employment and price stability.*"

[4]The study by Oosterloo et al. (2007) use the FSIs as the indicator of the quality of the FSRs.

one point, the policy must contain information about crisis management with the precise roles of all participating institutions being identified. The score of the countries for this item is rather low, with an average of 0.17 in 2011.

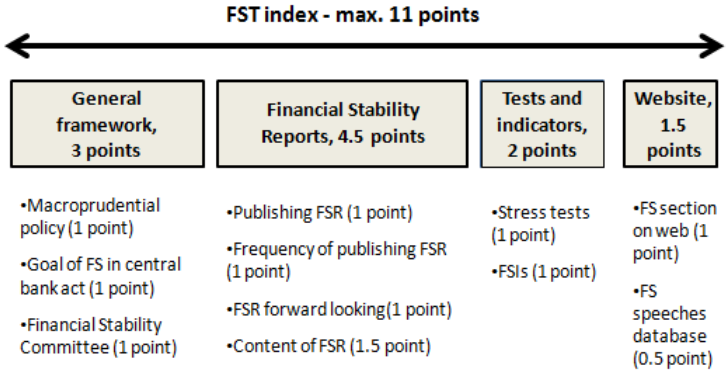
A stand-alone financial stability committee with regular meetings is another variable underlying our FST index (item 9). Central banks that establish a financial stability committee signal transparently to the markets who is responsible for making the decisions related to promoting financial stability. However, only the UK, Ireland and Portugal scored a non-zero value for this item by having a separate committee with regular meetings. It is important to note that the composition of a financial stability committee is not necessarily identical to the monetary policy committee. For example, the financial stability committee of the Bank of England includes several senior managers who are not members of the monetary policy committee.

Next, a value of one is assigned to those central banks that use their website effectively for communication regarding their financial stability (item 10). We operationalize this issue by examining whether central banks have a separate webpage (or webpages) solely dedicated to financial stability. This page(s) should contain all important information on financial stability, such as the definition of financial stability and its importance for economic development or FSRs. Interestingly, only 38 countries have a separate section on financial stability on their webpages.

Finally, we assign a half point for those central banks that have a database of speeches (item 11) made by their central bank representatives divided according to topic, including financial stability. Only 5 countries received a half point for the speeches database. Figure 3 summarizes the construction of our FST index.

We are aware that there are many issues when constructing the indices. The well-known issue is the choice and normalization of underlying indicators that form the aggregate index. With respect to normalization, we opted for simple averages because of their transparency. In addition, we want to produce an index that is comprehensive but not extremely difficult to replicate and update. We are aware that there may be some cases when the index does not fully address the changes in transparency. For example, the central bank may be less transparent regarding the analytical background behind the stress tests or the stringency of the stress tests. One way to put aside the concerns about the choice and normalization of underlying indicators is to explain the financial stability transparency index. If we cannot find plausible determinants of the FST index, then the critics may be right.

Figure 3: **Financial Stability Transparency Index: An Overview**

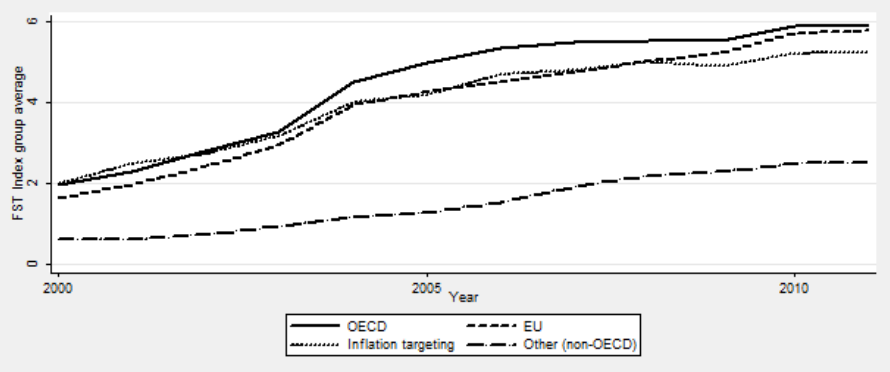


For the selection of countries, we follow Dincer and Eichengreen (2009), who develop the monetary policy transparency index. We choose an identical set of 110 countries with the yearly frequency of the index. This allows us to evaluate our hypothesis on the transparency culture in central banks. More specifically, one of our hypotheses (more on this in the following section) is that central banks that are already comfortable with being transparent are more likely to become transparent in the new areas of their business, such as financial stability. To examine this hypothesis, we use the monetary policy transparency index to proxy for the prevailing transparency culture in the central banks (the monetary policy transparency became an issue in the central banks in the 1980s to 1990s, i.e., well before the considerations about transparency on financial stability issues). As the Dincer and Eichengreen (2009) monetary policy transparency index is available only up to 2006, we update their index to 2011 and double-check their results (our updated index is available upon request).

2.3 Financial Stability Transparency Index - Results

The detailed country-level results for the FST index are available in the Appendix of this paper. Some figures summarizing the main results are available below. Figure 4 shows that, according to our index, central bank transparency regarding their policy framework to promote financial stability has been continuously increasing over time. The transparency was rather low in 2000, with an average score for the FST index of approximately 2 out of 11 points. In contrast

Figure 4: **The FST Index. OECD vs. non-OECD Countries. EU and Inflation Targeters**



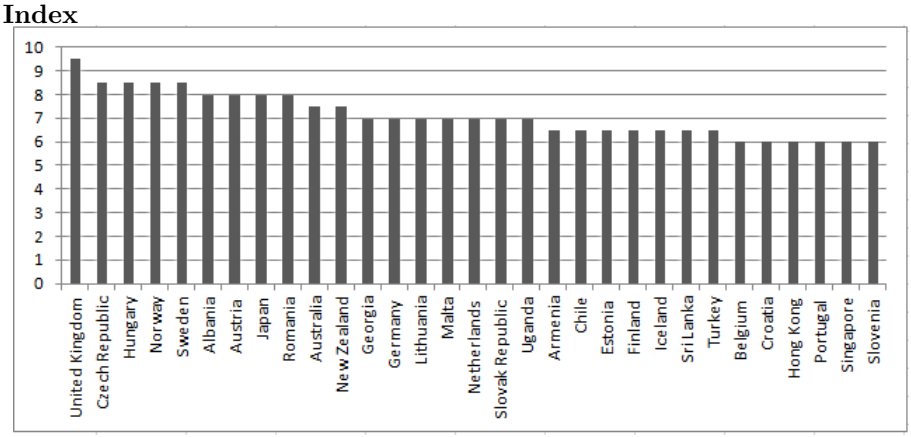
to monetary policy transparency, the communication on financial stability is a new phenomenon that has risen in importance during the last decade. We find that the EU, OECD and inflation-targeting countries are the most transparent and that the transparency gap between them and non-OECD countries has slightly increased over time.

Figure 5 presents a list of top performers. Not surprisingly, developed countries score very high on our index. The UK is a top performer, with 9.5 out of 11 points, followed by several Central European and Nordic countries. Interestingly, many Central and Eastern European countries appear in the list of top performers. This is not surprising, however, as this group of countries currently exhibits a very high degree of monetary policy transparency as well (Siklos, 2011). The U.K. and Nordic countries score very high in terms of monetary policy transparency (Dincer and Eichengreen, 2009) and, according to Liedord et al. (2011), who provide an index of banking supervision transparency for 24 countries, also have highly transparent bank supervision.

Next, we compare the FST index with respect to legal origin, as in Dincer and Eichengreen (2009). It seems that the countries with Nordic legal origin, followed by those with German legal origin, typically exhibit high values on the index of between 4 and 5. On the other hand, the countries with French, English and Socialist origin display values between 2 and 2.5.

As argued above, one of our hypotheses is that the central banks that are transparent in their other activities, such as in monetary policy conduct, are more likely to be transparent about financial stability issues. In our opinion, there are two underlying factors - consistency in communication and culture.

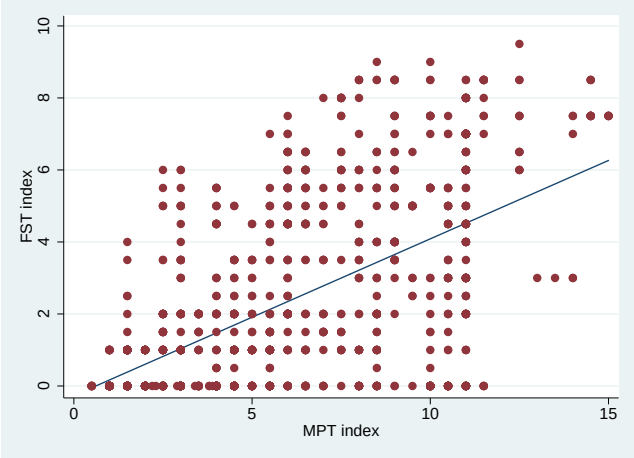
Figure 5: **Countries with a Highest Financial Stability Transparency Index**



The ambition of the central bank is to communicate consistently. Clearly, it would be difficult to explain to the public why the communication is transparent in some areas but not in others. The central bank culture might also play a role. In some countries, there is an established culture of accountability of central bankers that is closely related to transparency, and therefore, central banks might be accustomed to communicating and acting transparently. It is well known that central banks increased their monetary policy transparency in the 1980s and 1990s, i.e., well before the discussions about financial stability transparency appeared. For this reason, we use the monetary policy transparency index to proxy for the effects of central bank transparency culture as well as for the consistency in communication, and we examine the effect of monetary policy transparency on financial stability transparency.

As previously mentioned, we use the monetary policy transparency index (MPT index) by Dincer and Eichengreen (2009). However, this index is available only until 2006. Therefore, we use their methodology and update this index for the identical set of countries for 2007 to 2011. The contemporaneous correlation of the MPT index and the FST index is 0.59, which is significantly different from zero at the 1% level (see also Figure 6). The correlation of the FST index with the MPT index at various lags reaches similar values.

Figure 6: **Financial Stability Transparency vs. Monetary Policy Transparency**



Note: Financial stability transparency is proxied by the index developed in this paper. Monetary policy transparency is represented by the index developed by Dincer and Eichegreen (2009) and updated to 2011 by the authors of this paper.

3 What Drives Central Bank Transparency on Financial Stability Issues?

This section investigates the determinants of central bank transparency on financial stability issues. Oosterloo et al. (2007) examine those factors that contribute to the publishing of the FSR and find that the experience of a past banking crisis, higher income per capita and EU membership increase the likelihood of the FSR being published. We also examine the determinants of why FSRs are published. In some sense, whether the FSRs are published may be considered as a crude indicator of financial stability transparency; thus, it provides a robustness check to our baseline estimations for which we use our FST index as a dependent variable. As a consequence, this extends the research by Oosterloo et al. (2007) on understanding financial stability transparency.

In addition, we also use a broader set of regressors to analyze the motive for greater transparency. Our supposition is that central bank culture matters. In particular, we analyze the effect of monetary policy transparency, assuming that a well-established and transparent approach towards the communication of monetary policy is likely to lead to more transparent communication on financial stability. Monetary policy transparency preceded financial stability

transparency, as many countries around the world had already substantially increased their monetary policy transparency in the 1990s (Blinder et al., 2009, Crowe and Meade, 2009).

We expect that transparency may be influenced by financial stress. Accordingly, the central banks may be reluctant to increase transparency when financial markets are under severe distress, which could escalate the crisis further. We use the IMF financial stress index developed by Balakrishnan et al. (2009) and Cardarelli et al. (2011) because the index is comprehensive and, compared to other financial stress indices, has a solid country coverage.[5]

Next, as a proxy of the importance of the financial sector, we use the ratio of stock market capitalization to GDP published by the World Bank. Our hypothesis is that more transparent communication towards financial markets increases in importance in financially developed economies. The inflation-targeting regime is known for its high degree of transparency (Walsh, 2009), and therefore, we introduce a dummy variable for the inflation targeting regime to evaluate whether there is an effect stemming from the adoption of this monetary policy regime. The GDP per capita is included to proxy for the level of economic development. We also include OECD and EU dummies.

We estimate the following baseline model:

$$FSTindex_{i,t} = X_{i,t-j}\beta + \alpha_{i,t} + e_{i,t} \tag{1}$$

$FSTindex_{i,t}$ denotes our financial stability transparency index for country i in time (year) t. The explanatory variables, $X_{i,t-j}$, are lagged by j periods, as it is likely that they affect the dependent variable with a lag. For our baseline model, we assume $j = 1$. A robustness check with $j = 3$ is conducted. As previously discussed, our list of explanatory variables includes a monetary policy transparency index (as developed by Dincer and Eichengreen (2009) and updated for 2007 to 2011 by us according to Dincer and Eichengreen's methodology), financial stress, GDP per capita, the EU membership dummy, the OECD membership dummy, the inflation-targeting regime dummy and stock market

[5]The index is available for 17 advanced and 26 emerging countries until 2009. The index comprises the following seven components: banking sector beta (standard beta from capital asset pricing model), TED spread (3-month LIBOR minus the government short term rate), inverted term spread (government short term rate minus government long term rate), corporate debt spreads (corporate bond yields minus long term government bond yields), stock market change (month-over-month change multiplied by minus one), stock market volatility (6-month moving average of the squared month-on-month returns) and exchange market volatility (6-month moving average of the squared month-on-month growth rate of the exchange rate). A higher value for the financial stress index implies a higher degree of stress.

capitalization on GDP. We use the fixed effects estimator to estimate Eq. (1). A random effects estimator is not employed because the results of the Hausman test (available upon request) suggest that it would be inconsistent.

Table 1: **What Determines Financial Stability Transparency?**

FST index	(I)	(II)	(III)	(IV)	(V)	(VI)
	Full sample			Restricted sample		
MP transparency	0.43***	0.47***	0.46***	0.50***	0.49***	0.45***
	(7.28)	(7.34)	(7.00)	(7.41)	(7.08)	(6.26)
GDP p.c.	0.072***	0.072***	0.07***	0.07***	0.07***	0.06***
	(6.77)	(6.73)	(6.09)	(6.31)	(6.30)	(5.22)
Financial stress	-0.06*	-0.06**	-0.06**	-0.06*	-0.06*	-0.07**
	(-1.89)	(-2.05)	(-1.98)	(1.86)	(1.84)	(2.13)
IT dummy		-0.65	-0.63		0.05	0.11
		(-1.60)	(-1.53)		(0.10)	(0.23)
GDP growth			0.0002			0.001**
			(1.05)			(2.72)
Market capitalization			9.90E-05			-0.002
			(0.04)			(-0.63)
No. of observations	387	387	387	320	320	320
R-sqr. adj.	0.21	0.19	0.15	0.29	0.29	0.26

Note: The dependent variable is the financial stability transparency index. Explanatory variables are lagged by one year. A restricted sample denotes a sample of central banks with a positive value for the financial stability transparency index. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % levels, respectively. Fixed effects estimation.

The regression results on the determinants of the financial stability transparency index are available in Table 1. We find that monetary policy transparency contributes positively to financial stability transparency. Further, the results suggest that central banks in developed countries exhibit higher transparency in their policy framework on financial stability. We also find that the episodes of high financial stress negatively affect financial stability transparency. Additional factors such as the inflation targeting dummy, GDP growth and market capitalization do not systematically influence financial stability transparency.[6] The insignificance of an inflation targeting dummy likely reflects the fact that the plausibly higher transparency of this monetary policy regime is already captured by the monetary policy transparency index. Indeed, the correlation between the inflation targeting dummy and the monetary policy transparency index is relatively high and reaches a value of 0.5.

[6]Note that OECD and EU dummy variables are not included because of multicollinearity.

We estimate our regression model both for the full sample and the restricted sample. The countries with a zero value for the FST index are excluded from the restricted sample. The zero value for the FST index essentially means that the central bank does not publish the FSR. Clearly, it is important to also run the regressions for the restricted sample because some central banks are not responsible for financial stability by law, and therefore, they exhibit low financial stability transparency. On the other hand, there is a rationale for estimating our regressions based on the full model because central banks are at least indirectly concerned about financial stability, as it has an effect on price stability and economic activity.

We carry out a number of robustness checks. First, because our financial stability transparency index may be too finely measured, we estimate the factors influencing the publication of the FSR. If the FSR is published in year t, we assign a value of one; otherwise, we assign a value of zero. Therefore, we use a probit model to address the limitations of the dependent variable. As a consequence, this regression model closely resembles that of Oosterloo et al. (2007), though we use a wider set of determinants, as we, for example, include a monetary policy transparency index. Second, we re-estimate our baseline model without a measure for financial stress. The financial stress index is available only for approximately half of the countries, which, as a consequence, substantially reduces the number of observations. Third, we re-estimate our baseline regression model with explanatory variables lagged by three years rather than one year. Fourth, we run the cross-sectional regression to examine the effect of legal origin. As legal origin is time-invariant, the dummies for legal origin are eliminated in the fixed-effects estimation. To address the endogeneity of the regressors, we use the value of the FST index as of 2010, and the explanatory variables are lagged by one period. Fifth, we run a two-step Heckman estimation to address the fact that the central bank financial stability transparency depends on whether financial stability is included as a goal in the central bank act. This decision is plausibly non-random.

All in all, the battery of robustness checks largely support our baseline results, which are available in the Appendix (Tables A.1-A.5). The monetary policy transparency index is statistically significant in all regression specifications, and its coefficient is, to a large extent, stable. More developed countries are found to exhibit more transparent communication regarding financial stability, while the significance of the financial stress index varies slightly. The stress index is often significant in the specifications with a one year lag but never sig-

nificant for the specifications in which the explanatory variables are lagged by three years. This finding suggests that if there is an effect on FST stemming from volatility in the financial markets, the effect takes one year rather than more than one year. Consistent with our baseline regressions, the dummy for inflation targeting does not affect the financial stability transparency. Furthermore, the effect of GDP growth and market capitalization on the FST is not stable.

We also examine whether legal origin has an effect on financial stability transparency. Our results suggest that Nordic and, to a certain extent, German legal systems are positively related to financial stability transparency, while for English and French legal systems, we observe a negative or zero effect. There are many former colonies of English and French legal origin in our sample, which is likely a factor in the insignificance of these two variables. This result is in contrast with that of Oosterlo et al. (2007), who do not find any effect of legal origin on the decision to publish financial stability reports.

Finally, we examine the results of the Heckman two-step estimation. Clearly, financial stability transparency depends on a government's decision to include financial stability in the central bank act. The government's decision is likely to be non-random and can be influenced by specific events, such as the occurrence of past financial stress, the experience of deep recessions caused by financial instability or by inflation targeting.[7] The legal origin may also influence government actions regarding financial stability. Therefore, our selection equation explains the dummy variable, which takes the value of one if financial stability is stated as a goal in the central bank act. Our second-stage regressions posses the same set of explanatory variables as those in the baseline regressions. The results are presented in Table A.5 in the Appendix and, to a large extent, confirm the baseline results that monetary policy transparency and GDP per capita are positively related to financial stability transparency. On the other hand, financial stress is mostly insignificant, while economic growth and our proxy for the size of the financial sector both exercise positive and statistically significant effects.

[7]The current financial crisis has led to the discussion regarding whether the focus of inflation targeters solely on price stability is sufficient and whether the central banks need additional goals in the form of financial stability (see Walsh, 2009).

4 Does Financial Stability Transparency Have an Effect on Financial Stress?

While the previous section focused on why some central banks are more transparent than others, this section examines whether the transparency in policy frameworks on financial stability is beneficial. We estimate panel regressions to assess the effect of our financial stability transparency index on financial instability. More specifically, we focus on whether our index helps explain 1) the share of non-performing loans and 2) financial stress while controlling for some economic and financial variables. Therefore, we estimate the following model:

$$Finstress_{i,t} = FSTindex_{i,t-j}\beta_0 + X_{i,t-j}\beta_1 + \alpha_{i,t} + e_{i,t} \quad (2)$$

where $Finstress_{i,t}$ represents a measure of financial instability for country i in time (year) t: the share of non-performing loans and the IMF financial stress index, respectively. j represents the number of lags, and we set $j = 1$ in the baseline regressions and $j = 3$ as a robustness check. $FSTindex_{i,t-j}$ is our financial stability transparency index as defined in the previous sections and $X_{i,t-j}$ represents the control variables.

The effects of transparent communication regarding financial stability may differ significantly under typical financial conditions compared to periods when there are substantial risks to the financial system (Born et al., 2012). For this reason, we estimate equation (2) for both full and restricted samples. Using the restricted sample, we examine the effect of financial stability transparency under severe financial distress, which, according to our definition, occurs if the value of the dependent variable is greater than the 90th percentile.

Our regression results for the full sample are provided in Table 2. Greater financial stability transparency is found to contribute to lower financial stress and to fewer bad loans. Our results also indicate that GDP per capita is positively linked to financial instability. This result is likely to be related to the fact that the recent global financial crisis more heavily impacted developed (European) countries. On the other hand, more developed financial markets (as proxied by market capitalization) are found, in our regressions, to be beneficial to financial stability, as deeper financial markets are more able to absorb shocks. Although the current global financial crisis has challenged the view that price stability is sufficient for financial stability (Walsh, 2009, Born et al., 2012), we find that the effect of inflation-targeting adoption is beneficial for financial sta-

Table 2: **Does Financial Stability Transparency Have an Effect on Financial Instability?**

	(I)	(II)	(III)	(IV)	(V)	(VI)
	Non-perform. loans			Financial stress index		
Fin. stab. transparency	-0.35**	-0.35**	-0.26*	-0.24**	-0.22**	-0.20**
	(-2.50)	(-2.43)	(-1.82)	(-2.61)	(-2.34)	(-2.20)
GDP p.c.	0.06*	0.06*	0.06*	0.20***	0.20***	0.20***
	(1.93)	(1.83)	(1.88)	(9.24)	(9.22)	(9.32)
Market capitalization	-0.04***	-0.04***	-0.04***	-0.02***	-0.02***	-0.02***
	(-6.44)	(-6.43)	(-6.35)	(-4.21)	(-4.27)	(-4.40)
Inflation		0.01	-0.001		0.06**	0.05*
		(0.42)	(-0.05)		(2.25)	(1.82)
IT dummy			-3.11***			-1.25*
			(-2.52)			(-1.80)
No. of observations	667	667	667	354	354	354
R-sqr. adj.	0.07	0.07	0.08	0.04	0.05	0.05

Note: Explanatory variables lagged by one year. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % level, respectively. Fixed effects estimation. The dependent variable, non-performing loans, is divided by total loans.

bility. To a certain degree, the finding of positive effects of inflation targeting is also supported by the result showing that higher inflation increases financial stress. Nevertheless, inflation is statistically significant only in some regression specifications.

In sum, our results suggest that greater transparency is beneficial during normal times. On the other hand, when we restrict our sample only to the periods when financial systems are undergoing severe distress, our results show that greater transparency increases financial stress, thereby escalating the crisis. These results are provided in Table 3. To provide some perspective, severe distress, according to our definition, occurs when the ratio of non-performing loans to total loans exceeds 18.1% or when the value of the IMF's stress index is greater than 2.4. Double-digit ratios of non-performing loans to total loans close to 20% were observed in many Eastern European countries in the early 2000s before the banking sector restructuralization and were observed in several African countries and in China in the early 2000s. The high values of the financial stress index – exceeding the 90th percentile – were measured, for example, for Argentina in the early 2000s and in many European countries and several developed countries during the current financial crisis. In fact, the Deutsche Bundesbank decided not to publish their financial stability review in 2008 be-

Table 3: **Does Financial Stability Transparency Have an Effect on Financial Instability? Periods of High Distress**

	(I)	(II)	(III)	(IV)	(V)	(VI)
	Non-perform. loans			Financial stress index		
Fin. stab. transparency	19.56***	19.34***	19.34***	1.93**	1.14*	1.08
	(6.46)	(4.54)	(4.47)	(2.95)	(1.73)	(1.51)
GDP p.c.	-1.60	-1.41	-1.36	-0.41	-0.16	-0.14
	(-0.82)	(-1.09)	(-1.04)	(-2.47)	(-0.87)	(-0.70)
Market capitalization		-0.04	-0.04		0.02**	0.03**
		(-0.05)	(-0.05)		(2.19)	(2.10)
Inflation			-0.01			0.08
			(-0.07)			(0.38)
No. of observations	68	56	56	36	36	36
R-sqr. adj.	0.04	0.04	0.04	0.01	0.01	0.01

Note: Explanatory variables are lagged by one year. t-statistics are shown in parentheses; ***,. ** and,. * denotes statistical significance at the 1,. 5 and 10 % levels,. respectively. Fixed effects estimation. The dependent variable for non-performing loans is divided by total loans. The period of high distress is defined as the period when the value of the dependent variable exceeds the is greater than its 90th% percentile. The IT dummy is dropped from the regressions because its variation is zero.

cause of the high financial stress (note that the value of financial stress index for Germany was 6.4 in 2008, i.e., well above the 90th percentile). Similarly, the financial stability reports are not available for Ireland during the recent global financial crisis. Interestingly, we also find some evidence that more developed financial sectors may have incurred detrimental effects of the recent crisis.

To some degree, our empirical exercise is close to that of Cihak et al. (2012), who created the financial stability report composite quality rating for 44 countries. This quality rating is different from our financial stability transparency index, as our index does not focus as heavily on financial stability reports and is available for 110 countries. Furthermore, our index is less subjective, as it focuses more on the coverage of financial stability reports than on the quality of those reports. On the other hand, the approach presented by Cihak et al. (2012) is more ambitious in that it focuses on the clarity and quality of the financial stability reports and requires careful reading of and expert judgment of all financial stability reports.

Cihak et al. (2012) examine whether the publication of financial stability reports or the financial stability report composite quality rating influences the occurrence of banking crises and various measures of financial market volatility.

They find that the publication of financial stability reports does not have an effect on financial stability. In addition, their results indicate that the financial stability report composite quality rating is positively related to financial stability to a certain extent. In turn, their results provide some support to the supposition that clear and consistent central bank communication regarding financial stability is beneficial.

Compared to the results of Cihak et al. (2012), our results are suggest the benefits of greater transparency during normal times, as our results unequivocally suggest that greater transparency reduces financial stress during these periods. We also provide a richer perspective on the effect of financial stability transparency because we show that the effects of financial stability transparency may differ substantially between stable and turbulent financial periods.

In addition, our empirical results are in line with Gick and Pausch (2012). They use the framework of Bayesian persuasion to show that it is welfare improving to disclose stress test methodology and stress test results in normal times but not during crisis times. Similarly, Goldstein and Sapra (2012) argue that the public disclosure of macro stress tests is beneficial for market discipline unless there are excessive informational and market frictions. From the policy perspective, our results represent a challenge for central bank policies. Although we document the benefits of transparency in normal times, transparency loses its beneficial effects during the crisis. In this case, if central bank decides to keep its level of transparency, it is likely to escalate crisis. On the other hand, if central bank reduces its transparency (for example, does not publish the results from stress tests), it loses credibility and may be escalates crisis anyway.

As a robustness check, we re-estimate our results presented in Tables 2 and 3 for the sample, in which we include only central banks with a positive financial stability transparency index. These results are available in Tables A.6 and A.7 in the Appendix. Again, these results largely confirm our findings presented in the main text.

5 Concluding Remarks

In this paper, we develop an index that assesses the degree of the transparency of central banks regarding their policy frameworks to support financial stability for 110 countries in 2000 and 2011. The index consists of several items, such as the coverage of financial stability reports and the forward-looking orienta-

tion of these reports, the availability of stress tests, the provision of financial stability indicators to the public, and the clarity of the role of central banks in safeguarding the financial stability and decision-making procedures. We posit that the degree of financial stability transparency is related to monetary policy transparency. We also update the monetary policy transparency index by Dincer and Eichengreen (2009) to 2011 to provide an identical set of 110 countries. Using these indices, we first investigate what determines the financial stability transparency of central banks. Second, we examine whether greater financial stability transparency is beneficial to the stability of financial markets.

Our results suggest that financial stability transparency has been continuously increasing during the 2000s, though it still varies greatly across central banks. Furthermore, financial stability transparency is greater in more developed countries, especially in those with Nordic and German legal origin. We find some evidence that past episodes of financial stress tend to have a negative effect on how transparent central banks are regarding their framework to promote financial stability. Next, our results show that central banks with more transparent monetary policies tend to exhibit greater financial stability transparency. This result, although new, is not surprising. It is plausible that central banks, which are used to communicating transparently in some areas of their activities (e.g., their monetary policy), will transmit transparency to new areas of their businesses (e.g., financial stability).

Next, we find that the consequences of greater financial stability transparency on financial stress depend on the degree of financial stress. In normal times, when financial stress is low, our results suggest that greater transparency is beneficial. However, this finding does not hold for periods of high financial stress. Under these circumstances, increasing financial stability transparency has adverse effects on financial stress.

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Appendix

Table A.1: **What Determines the Publication of Financial Stability Reports?**

FSR dummy	(I)	(II)	(III)	(IV)	(V)	(VI)
	Lagged by one year			Lagged by three years		
MP transparency	0.45***	0.43***	0.42***	0.43***	0.41***	0.44***
	(5.22)	(4.76)	(4.66)	(3.68)	(3.40)	(3.64)
GDP p.c.	0.06***	0.07***	0.08***	0.04	0.04*	0.07**
	(3.61)	(3.69)	(3.93)	(1.53)	(1.66)	(2.12)
Financial stress	-0.10*	-0.09*	-0.10*	-0.001	0.002	0.04
	(1.84)	(1.81)	(1.85)	(-0.01)	(0.03)	(0.51)
IT dummy		0.39	0.28		0.38	0.003
		(0.78)	(0.53)		(0.59)	(0.01)
GDP growth			-0.0002			-0.0005**
			(-1.63)			(-2.28)
Market capitalization			-0.004			0.01
			(-1.10)			(0.88)
No. of observations	387	387	387	345	345	345
Pseudo R-sqr.	0.78	0.78	0.78	0.84	0.85	0.85

Note: The dependent variable is the financial stability report dummy. Explanatory variables are lagged by one year and three years, respectively. A restricted sample denotes a sample of central banks with a positive value of the financial stability transparency index. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % levels, respectively

Table A.2: **What Determines Financial Stability Transparency? Explanatory Variables Lagged by 3 Periods**

FST index	(I)	(II)	(III)	(IV)	(V)	(VI)
	Full sample			Restricted sample		
MP transparency	0.35***	0.37***	0.36***	0.39***	0.38***	0.34***
	(6.36)	(6.28)	(4.82)	(6.44)	(4.78)	(5.32)
GDP p.c.	0.02**	0.02**	0.01*	0.02**	0.02**	0.01
	(2.33)	(2.29)	(1.69)	(2.01)	(2.19)	(0.95)
Financial stress	0.001	0.001	0.01	-0.03	-0.03	-0.02
	(0.004)	(0.004)	(0.03)	(-1.03)	(-1.22)	(-0.95)
IT dummy		-0.38	-0.36		0.16	0.19
		(-1.07)	(-0.95)		(0.35)	(0.47)
GDP growth			0.0002*			0.0005*
			(1.81)			(2.41)
Market capitalization			0.02			0.001
			(1.31)			(0.50)
No. of observations	345	345	345	294	294	294
R-sqr. adj.	0.18	0.16	0.06	0.24	0.24	0.18

Note: The dependent variable is the financial stability transparency index. Explanatory variables are lagged by three years. A restricted sample denotes a sample of central banks with positive values of the financial stability transparency index. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 %, levels, respectively. Fixed effects estimation.

Table A.3: **What Determines Financial Stability Transparency? The Effect of Legal Origin**

FST index	(I)	(II)	(III)	(IV)	(V)	(VI)
		Full sample			Restricted sample	
MP transparency		0.36***	0.36***		0.33***	0.34***
		(6.57)	(6.04)		(5.69)	(4.17)
GDP p.c.			0.001			-0.010
			(0.08)			(-0.03)
Legal origin - French	-0.61	-1.38**	-1.39**	0.15	-0.81	-0.80
	(-1.11)	(-2.42)	(-2.34)	(0.26)	(-1.36)	(-1.34)
Legal origin - German	1.82***	0.58	0.57	1.28***	0.68	0.68
	(2.65)	(0.92)	(0.87)	(2.64)	(1.06)	(1.02)
Legal origin -English	-0.78	-1.32**	-1.24**	-0.01	-0.67	-0.67
	(-1.34)	(-2.25)	(-2.24)	(0.01)	(-1.18)	(-1.16)
Legal origin - Nordic	3.27***	1.56**	1.53*	3.27***	1.71**	1.71*
	(3.89)	(2.02)	(1.70)	(3.87)	(2.14)	(1.83)
No. of observations	91	91	91	74	74	74
R-sqr. adj.	0.25	0.49	0.48	0.20	0.42	0.41

Note: The dependent variable is the financial stability transparency index. A cross-sectional regression with the dependent variable is averaged over 2001 to 2011. Explanatory variables as of 2000. A restricted sample denotes a sample of central banks with positive values of the financial stability transparency index. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % levels, respectively. Robust standard errors.

Table A.4: **What Determines Financial Stability Transparency? Financial Stress Index Excluded**

FST index	(I)	(II)	(III)	(IV)	(V)	(VI)
	Full sample			Restricted sample		
MP transparency	0.57***	0.58***	0.63***	0.70***	0.67***	0.66***
	(16.10)	(14.72)	(13.89)	(15.30)	(13.55)	(12.47)
GDP p.c.	0.06***	0.06***	0.06***	0.06***	0.06***	0.05***
	(9.53)	(9.50)	(7.78)	(7.72)	(7.76)	(6.92)
IT dummy		-0.10	0.127		0.56	0.57
		(-0.34)	(0.39)		(1.60)	(1.59)
GDP growth			0.0001			0.0002
			(0.77)			(1.21)
Market capitalization			0.001			0.001
			(0.70)			(1.21)
No. of observations	1189	1189	955	780	780	683
R-sqr. adj.	0.33	0.33	0.28	0.35	0.36	0.31

Note: The dependent variable is the financial stability transparency index. Explanatory variables are lagged by three years. The restricted sample denotes a sample of central banks with positive values of the financial stability transparency index. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % levels respectively. Fixed effects estimation.

Table A.5: **What Determines Financial Stability Transparency? Heckman Selection Model**

FSR dummy	(I)	(II)	(III)	(IV)	(V)	(VI)
	Lagged by one year			Lagged by three years		
	Second stage: Financial Stability Transparency					
MP transparency	0.36***	0.35***	0.31***	0.31***	0.33***	0.30***
	(5.00)	(4.59)	(4.59)	(3.97)	(4.11)	(4.17)
GDP p.c.	0.04***	0.04***	0.06***	0.04***	0.04***	0.06***
	(3.68)	(3.68)	(5.61)	(3.32)	(3.37)	(5.21)
Financial stress	-0.02	-0.02	-0.16**	0	-0.02	-0.07
	(-0.31)	(-0.28)	(-2.06)	(-0.02)	(-0.13)	(-0.55)
IT dummy		0.17	0.70*		-0.34	0.17
		(0.41)	(1.76)		(0.81)	(0.41)
GDP growth			0.001***			0.0004**
			(2.85)			(1.96)
Market capitalization			0.02***			0.01***
			(4.72)			(4.99)
	First stage: Financial Stability in the Central Bank Act					
Financial stress	0.05	0.05	0.05	-0.06	-0.06	-0.06
	(1.46)	(1.46)	(1.46)	(-1.11)	(-1.11)	(-1.11)
Market capitalization	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(-0.38)	(-0.38)	(-0.38)	(-0.29)	(-0.29)	(-0.29)
GDP p.c.	-0.01**	-0.01**	-0.01**	-0.01*	-0.01*	-0.01*
	(-2.15)	(-2.15)	(-2.15)	(-1.72)	(-1.72)	(-1.72)
IT dummy	-0.21	-0.21	-0.21	-0.2	-0.2	-0.2
	(-1.32)	(-1.32)	(-1.32)	(-1.10)	(-1.10)	(-1.10)
GDP growth	-0.0003***	-0.0003***	-0.0003***	-0.0004***	-0.0004***	-0.0004***
	(-3.34)	(-3.34)	(-3.34)	(-2.81)	(-2.81)	(-2.81)
Legal origin - French	-1.32***	-1.32***	-1.32***	-1.38***	-1.38***	-1.38***
	(-4.97)	(-4.97)	(-4.97)	(-4.63)	(-4.63)	(-4.63)
Legal origin - German	0.27	0.27	0.27	0.22	0.22	0.22
	(1.02)	(1.02)	(1.02)	(0.75)	(0.75)	(0.75)
Legal origin -English	-0.84***	-0.84***	-0.84***	-0.81**	-0.81**	-0.81**
	(-2.90)	(-2.90)	(-2.90)	(-2.51)	(-2.51)	(-2.51)
Mills ratio	-1.35***	-1.41***	-1.28***	-1.41***	-1.31***	-1.25***
No. of observations	386	386	386	301	301	301

Note: The dependent variable is the financial stability transparency index. The dummy, that is, whether financial stability is included in the central bank activity, serves as a dependent variable in the selection equation. Explanatory variables are lagged by one year and three years, respectively. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % levels, respectively. A two-step method.

Table A.6: **Does Financial Stability Transparency Have an Effect on Financial Instability? A Restricted Sample**

	(I)	(II)	(III)	(IV)	(V)	(VI)
	Non-perform. loans			Financial stress index		
Fin. stab. transparency	-0.43***	-0.40***	-0.38**	-0.20**	-0.18*	-0.17*
	(-2.89)	(-2.70)	(-2.49)	(-2.01)	(-1.80)	(-1.73)
GDP p.c.	0.09**	0.09***	0.09**	0.19***	0.19***	0.19***
	(2.55)	(2.51)	(2.52)	(8.21)	(8.23)	(8.23)
Market capitalization	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***
	(-3.71)	(-3.77)	(-3.76)	(-3.99)	(-4.10)	(-4.12)
Inflation		0.10**	0.09*		0.07**	0.06**
		(2.10)	(1.89)		(2.41)	(2.20)
IT dummy			-0.64			-0.42
			(-0.44)			(-0.45)
No. of observations	487	487	487	288	288	288
R-sqr. adj.	0.04	0.04	0.04	0.06	0.06	0.06

Note: Explanatory variables are lagged by one year. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % levels, respectively. Fixed effects estimation. The dependent variable, non-performing loans, is divided by the total number of loans. A restricted sample denotes a sample of central banks with a positive value for the financial stability transparency index.

Table A.7: **Does Financial Stability Transparency Have an Effect on Financial Instability? Periods of High Distress, Restricted Sample**

	(I)	(II)	(III)	(IV)	(V)	(VI)
	Non-perform. loans			Financial stress index		
Fin. stab. transparency	18.17***	16.03**	15.96**	0.22	0.29*	0.29**
	(4.03)	(3.05)	(2.84)	(1.59)	(1.71)	(2.09)
GDP p.c.	-0.99	-0.46	-0.35	0.02	0.01	0.01
	(-0.69)	(-0.28)	(-0.17)	(1.43)	(0.69)	(0.609)
Market capitalization		0.18	0.18		0.01*	0.01**
		(1.07)	(0.99)		(1.75)	(2.04)
Inflation			-0.02			-0.01
			(-0.10)			(-0.30)
No. of observations	23	23	23	32	32	32
R-sqr. adj.	0.01	0.03	0.04	0.24	0.26	0.27

Note: Explanatory variables are lagged by one year. t-statistics are shown in parentheses; ***, ** and * denote statistical significance at the 1, 5 and 10 % levels, respectively. Fixed effects estimations. The dependent variable, non-performing loans, is divided by the total number of loans. The period of high distress is defined as the period when the value of the dependent variable is greater than its 90th percentile. The IT dummy dropped is from the regressions, as its variation was zero.

Table A.8: **Central Banks' Transparency Financial Stability Index - Country Level Results**

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Africa	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	1.2	1.4	1.5	1.52
Eastern Africa	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	1.3	1.6	1.6	1.8
Ethiopia	0	0	0	0	0	0	0	0	0	0	0	0
Kenya	0	0	0	0	0	0	0	0	0	0	0	0
Malawi	0	0	0	0	0	0	0	0	0	0	0	0
Mauritius	0	0	0	0	1	1	1	1	4.5	4.5	4.5	4.5
Rwanda	0	0	0	0	0	0	0	0	1.5	0	0	0
Uganda	1	1	1	1	1	1	1	1	2	5.5	6	7
Zambia	1	1	1	1	1	1	1	1	1	1	1	1
Northern Africa	0	0	0	0	0	0	0	0	0	0	0	0
Egypt	0	0	0	0	0	0	0	0	0	0	0	0
Libya	0	0	0	0	0	0	0	0	0	0	0	0
Sudan	0	0	0	0	0	0	0	0	0	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0	0	0	0
Southern Africa	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	2.8	2.8	2.8	2.8
Lesotho	0	0	0	0	0	0	0	0	0	0	0	0
Namibia	0	0	0	0	0	0	0	0	3.5	3.5	3.5	3.5
South Africa	4	4	4	4	4	4	4	4	5	5	5	5
Western Africa	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.7	0.7	1.5	1.5	1.5
Ghana	0	0	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	1	1	3.5	3.5	3.5
Sierra Leone	1	1	1	1	1	1	1	1	1	1	1	1
Americas	0.3	0.3	0.7	0.8	1.1	1.3	1.7	1.8	2.0	1.8	2.1	2.1
Latin America/Carib.	0.4	0.4	0.7	0.7	1.0	1.2	1.6	1.8	2.1	1.8	2.2	2.2
East Caribbean	0.3	0.3	0.3	0.3	0.3	0.3	0.8	0.8	1.4	1.4	1.5	1.5
Aruba	0	0	0	0	0	0	0	0	0	0	0	0
Bahamas	0	0	0	0	0	0	0	0	0	0	0	0
Barbados	0	0	0	0	0	0	0	0	0	0	0	0
Cuba	0	0	0	0	0	0	0	0	0	0	0	0
Jamaica	0	0	0	0	0	0	3.5	3.5	3.5	3.5	3.5	3.5
Trinidad and Tobago	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	5	5	5.5	5.5

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Central America	0.4	0.4	0.4	0.4	0.4	0.4	1.4	2.0	2.0	1.6	2.0	2.0
Belize	0	0	0	0	0	0	0	0	0	0	0	0
El Salvador	1	1	1	1	1	1	1	3.5	3.5	3.5	3.5	3.5
Guatemala	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0.5	0.5	0.5	0.5	0.5	0.5	4.5	4.5	4.5	3	4.5	4.5
South America	0.4	0.4	1.2	1.4	2.1	2.6	2.6	2.6	2.8	2.3	3.0	3.0
Argentina	1	1	1	1	5	5	5	5	5.5	5.5	5.5	5.5
Brazil	0	0	3	3.5	3.5	3.5	3.5	3.5	3.5	0	4	4
Chile	1	1	1	1	5.5	5.5	5.5	5.5	5.5	5.5	6.5	6.5
Colombia	0	0	2.5	3	0	3	3	3	4	4	4	4
Guyana	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0	0	0	0
Uruguay	1	1	1	1	1	1	1	1	1	1	1	1
Northern America	0	0	1	1.2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Bermuda	0	0	0	0	0	0	0	0	0	0	0	0
Canada	0	0	3	3.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
United States of America	0	0	0	0	0	0	0	0	0	0	0	0
Oceania	1.8	1.8	1.8	1.8	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Australia/New Zealand	3.5	3.5	3.5	3.5	7.25	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Australia	4	4	4	4	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5
New Zealand	3	3	3	3	7	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Melanesia	1	1	1	1	1	1	1	1	1	1	1	1
Fiji	0	0	0	0	0	0	0	0	0	0	0	0
Papua New Guinea	1	1	1	1	1	1	1	1	1	1	1	1
Solomon Islands	1	1	1	1	1	1	1	1	1	1	1	1
Vanuatu	2	2	2	2	2	2	2	2	2	2	2	2
Asia	0.8	0.9	0.9	1.2	1.4	1.6	2.1	2.5	2.6	2.7	3.2	3.2
Central Asia	0.7	0.7	0.7	0.7	1.3	1.5	2.3	2.2	2.3	2.3	2.3	2.3
Kazakhstan	2	2	2	2	2	2	4.5	4.5	4.5	4.5	5	5
Kyrgyzstan	0	0	0	0	2	2.5	2.5	2	2.5	2.5	2	2
Tajikistan	0	0	0	0	0	0	0	0	0	0	0	0
Eastern Asia	1.6	1.8	1.8	2.5	2.6	3.1	3.8	5	5	4.5	5	4.9
China	1	1	1	1	1	3.5	3.5	3.5	3.5	2	3.5	3.5
Hong Kong	1	1	1	4.5	5	5	5	6	6	5	6	6
Japan	2	3	3	3	3	3	6.5	8.5	8.5	8.5	8.5	8

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Korea	2	2	2	2	2	2	2	5	5	5	5	5
Mongolia	2	2	2	2	2	2	2	2	2	2	2	2
Southern Asia	0.5	0.5	0.5	0.6	0.6	0.6	1.3	2	2	2.2	3.4	3.4
Bangladesh	0	0	0	0	0	0	0	0	0	0	3	3
Bhutan	0	0	0	0	0	0	0	0	0	0	0	0
India	0	0	0	0	0	0	0	0	0	0	3	3
Pakistan	1	1	1	1	1	1	4.5	4.5	4.5	4.5	4.5	4.5
Sri Lanka	1.5	1.5	1.5	2	2	2	2	5.5	5.5	6.5	6.5	6.5
South-Eastern Asia	0.8	0.8	0.8	1.7	2.6	2.6	2.8	2.6	2.7	2.9	2.9	2.9
Indonesia	1	1	1	5.5	5.5	4.5	5.5	5.5	5.5	5.5	5.5	5.5
Malaysia	1	1	1	1	1	1	1	1	1	2	2	2
Philippines	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	1	1	1	1	5.5	6.5	6.5	5.5	6	6	6	6
Thailand	1	1	1	1	1	1	1	1	1	1	1	1
Western Asia	0.7	0.7	0.8	0.8	0.8	1.0	1.4	1.9	1.9	2.2	2.7	2.8
Armenia	2	2	2	2	2	2.5	2.5	6	6	6	6.5	6.5
Bahrain	1	1	1	1	1	1	1	4.5	4.5	5	5	5
Georgia	2	2	3	3	3	3	5.5	5.5	5.5	6	7	7
Iraq	0	0	0	0	0	0	0	0	0	0	0	0
Israel	0	0	0	0	0	0	0	0	0	0	1	1
Jordan	0	0	0	0	0	0	0	0	0	0	3.5	3.5
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0
Oman	0	0	0	0	0	0	0	0	0	0	0	0
Qatar	1	1	1	1	1	1	2	2	2	5.5	5.5	5.5
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	2	2	2	2	2	5	5.5	5.5	5.5	5.5	5.5	6.5
United Arab Emirates	0	0	0	0	0	0	0	0	0	0	0	0
Yemen	1	1	1	1	1	1	1	1	1	1	1	1
Europe	1.7	1.9	2.4	2.9	3.8	4.1	4.4	4.8	5.0	5.0	5.5	5.5
Centr./East. Europe	1.8	2.5	2.8	3.4	4.7	5.0	5.8	5.8	6.3	6.3	6.4	6.4
Bulgaria	1	1	1	1	1	1	1	1	1	1	1	1
Czech Republic	2.5	2.5	2.5	2.5	7	7	7	7	8	8	8.5	8.5
Hungary	3	7.5	9	8.5	8.5	9	7.5	7.5	8.5	8.5	8.5	8.5
Poland	0	0	0	4.5	4.5	4.5	6	5	5.5	5.5	5.5	5.5
Romania	2.5	2.5	2.5	2.5	3.5	3.5	8	8	8	8	8	8

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Slovakia	1.5	1.5	1.5	1.5	3.5	5	5.5	6	7	7	7	7
Former Soviet Union	1	1	1.6	1.8	2	2.3	2.8	3.6	2.8	2.8	2.8	2.8
Belarus	0	0	0	0	0	0	0	2	2	2	2	2
Republic of Moldova	2	2	2	2	2	2	2	2	2	2	2	2
Russian Federation	1	1	3.5	4	5	5	5	5	5	5	5	5
Ukraine	1	1	1	1	1	2	4	5.5	2	2	2	2
Northern Europe	2.9	2.9	3.3	4.2	5.3	5.6	5.8	6.5	6.1	6.2	6.4	6.4
Denmark	1	1	4.5	4.5	4.5	4.5	4.5	4.5	5.5	4.5	4.5	4.5
Estonia	1	1	1	4	4.5	4.5	4.5	5.5	6.5	6.5	6.5	6.5
Finland	3	3	3	5.5	7	7	7	7	7	7	6.5	6.5
Iceland	1.5	1.5	1.5	1.5	1.5	5	6	6	6	6	6.5	6.5
Ireland	2	2	2	2	7	7	7	7	2	2	3	3
Latvia	0	0	0	2.5	3.5	3.5	3.5	5	4.5	4.5	4.5	4.5
Lithuania	1	1	1	1	2	2	2	6	6	6	7	7
Norway	6	6	6	6.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Sweden	7	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.5	8.5	8.5	8.5
United Kingdom	6	6	6	6.5	6.5	6.5	7.5	7.5	7.5	8.5	8.5	8.5
Southern Europe	0.7	0.7	1.0	1.1	2.0	2.1	2.1	2.7	3.5	3.7	5.0	5.1
Albania	2	2	2	2	2	2	2	6.5	7.5	7.5	8	8
Croatia	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	4.5	5	6	6
Cyprus	0	0	0	0	0	0	0	0	0	0	0	0
Greece	0	0	0	0	0	0	0	0	0	3	4.5	4.5
Italy	0	0	0	0	0	0	0	0	0	0	3.5	4.5
Malta	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	6	7	7	7
Portugal	0	0	0	0	4.5	4.5	4.5	4.5	4.5	2	6	6
Slovenia	1	1	2	2	6	6	6	6	6	6	6	6
Spain	0	0	2	2.5	2.5	3	3	3	3	3	4	4
Western Europe	1.6	2.2	2.9	3.8	4.4	5.0	5.1	5.1	5.3	5.3	5.4	5.4
Austria	2.5	7	7	7	8	8	8	8	8	8	8	8
Belgium	0.5	0.5	3.5	3.5	4	4	4	4	5	5	6	6
France	1.5	1.5	3	3	3	3	3	3	3	3	3	3
Germany	1.5	1.5	1.5	5	5	7	7	7	4	7	7	7
Luxembourg	1	1	1	1	1	2	2	2	2	2	2	2
Netherlands	3	3	3	3	5	6	7	7	7	7	7	7
Switzerland	1	1	1	4	5	5	5	5	5	5	5	4.5