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Inflation Targeting and Banking System Soundness: A Comprehensive Analysis

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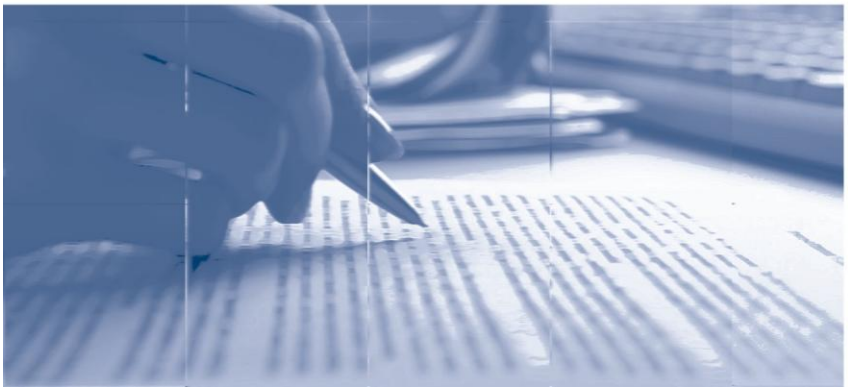

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Inflation Targeting and Banking System Soundness: A Comprehensive Analysis*

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Abstract

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Several specialists and authorities blame inflation targeting (IT) regime for not responding to the increasing systemic risk and the development of asset bubbles. Nevertheless, we employ a database with commercial banks from 71 countries between 1998 and 2012, and we present evidence that: banks from IT countries: (i) are, on average, more stable; (ii) have sounder systemically important banks; and (iii) are less affected in times of global liquidity shortage. These results are in line with the existence of a price stability channel towards financial stability. Our conclusions are robust to whether we compare banks from countries that have the same legal origins, whether we control for the responsibility of bank supervision being delegated to other bodies rather than the Central Bank.

Key Words: inflation targeting, financial crisis, financial stability, bank's risk
JEL Classification: D40, G21, G28

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1 Introduction

The financial crisis of 2007-2008 has led to criticisms towards the inflation targeting (IT) regime, a previously well accepted monetary policy. There are strong evidences that IT has helped countries reduce inflation in the first years of implementation and anchor long-run expectations (Cukierman, 2002; Johnson, 2002). However, some specialists say that central bankers, in their focus in reducing inflation, might have overlooked the situation of the banking system and the development of asset bubbles (Blanchard et al., 2010). This behavior might have given the necessary conditions for the financial crisis to occur. On the other hand, a traditional view of inflation target says that price stability leads to more predictable returns and, therefore, to better performance. In fact, periods of high inflation may lead to excessive borrowing and, when prices start to decline, there are large loan defaults.

Empirical papers that test this viewpoint are rare. For instance, Frappa and Mésonnier (2010) studies 17 developed economies (among which 9 are ITers) and they show that IT countries are more likely to have housing bubbles and, therefore, lower financial stability. Fouejieu (2013), on the other hand, focus on 13 emerging economies (among which 7 are ITers) and finds that even though IT reduces financial stability, central banks react more rapidly to financial imbalances, which undermines the argument of IT criticizers. Nevertheless, these papers: (i) only work with a few specific countries; (ii) only consider aggregate measures of financial fragility.

Our paper provides empirical evidence on this discussion by analyzing whether ITers have more fragile banking sectors than non-ITers. We, therefore, test whether price stability together with enhanced communication and accountability by the central bank can reduce the likelihood of a crisis in the financial sector. To do so, we employ a database with 3964 commercial banks from 71 countries (among which 22 ITers) during the period of 1998 and 2012. The richness of this data allows us to make meaningful interpretations of the results and whose validity is not limited to a specific case or country. In addition, to our knowledge, we are the first paper to analyze the effects of IT on banking stability by using disaggregated data.

Our empirical approach answers the following questions. First, we ask whether banks from IT countries are, on average, more or less fragile. We do so by regressing a measure of financial fragility on a dummy equal to one if the country where this bank is operating is an ITer. We find a negative and significant coefficient for this dummy, indicating that banks are more stable under this regime. Second, we test whether banking systems from IT countries are more vulnerable during global uncertainty periods (i.e., periods with a higher US treasury bill minus Eurodollar (TED) Spread). Our results point to the opposite, which is banks from ITers being more resilient to global liquidity shocks,

as well. Third, does systemically important banks take more risk in IT countries? In other words, are regulators from ITers less preoccupied with systemic important financial institutions? Again, we find that this is not the case, since these large banks are more stable in countries that adopt IT.

These results go in favor of the conventional wisdom – that there is a link between price and financial stabilities – and they go against recent statements by specialists – in which price stability is not a sufficient condition for financial stability. Therefore, our conclusions show that the criticisms towards IT may not be entirely justified, on average. There may be other factors explaining why banking systems from some countries might have suffered more than others, but the inflation targeting policy does not seem to be one of them. In addition, one have to bear in mind that the US, where the crisis has first originated and consequently the main affected by it, is not an inflation targeter.

We also address some potential alternative explanations for our results. First, when studying countries from throughout the world, there is always the possibility of omitted variable bias. There are factors, such as economic and legal environments, that may generate differences in the relationships we want to uncover. Therefore, we also present the results disaggregated by legal origin groups, as defined by La-Porta et al. (1997, 1998). These authors divide countries into groups depending on the origins of their legal systems, i.e. English (Common Law), French, German, Scandinavian and Socialist (these four last, considered Civil Law). These results, overall, do not change. A few of the coefficients, however, are no longer significant, but they all have the same sign as our main model. Therefore, when compared to its peers, ITers' banking system still seem to outperform - or at least to be similar as - the others' in terms of stability.

Second, we are also aware that some countries do possess supervisory bodies separated from the central bank. Therefore, the criticism towards inflation targeting may be only valid in countries where the central bank also has the responsibility to supervise banks. Otherwise, the argument in which IT central banks do not care with financial stability might not apply. Thus, we take the information on whether the supervisory body is outside the central banks from the well known Barth et al. (2001, 2004, 2008, 2013) database. This database, however, has some shortcomings: (a) it does not cover all the countries in our database; (b) there are missing data in some of their surveys; (c) the survey questions regarding whether the supervisory body is separated from the central bank changes from the 2000 and 2003 to the 2008 and 2011 surveys. The majority of our results seems to hold when we re-run our models by introducing this new dimension into account.

The remainder of this paper is organized as follows. Section 2 displays a literature review about inflation targeting and financial stability. Section 3 discusses the data, the sources and the variables employed in our model. Section 4 presents the empirical results

and section 5 presents some additional robustness tests. Finally, section 6 concludes the paper.

2 Inflation Targeting and Financial Stability

According to Mishkin (2004) and Heenan et al. (2006), inflation targeting consists of four elements: (i) An explicit central bank mandate to pursue price stability as the primary objective of monetary policy, together with accountability for performance in achieving the objective; (ii) Explicit quantitative targets for inflation; (iii) Policy actions based on a forward-looking assessment of inflation pressures, taking into account a wide array of information; and (iv) Increased transparency of monetary policy strategy and implementation. Therefore, besides setting an explicit target, countries that adopt this policy also have enhanced Central Bank communication and accountability that may increase the transparency of the monetary policy and better anchor agents' expectations.

Recent evidence seems to point IT as a monetary policy that has reduced inflationary pressures and anchored price expectations in the countries that have been implementing it (Cukierman, 2002; Johnson, 2002). In fact, these countries have passed through a initial period of disinflation by setting year-by-year decreasing targets until a target of around 3% could be set (Roger, 2009). In addition, according to Gonçalves and Carvalho (2009), these disinflation periods have not been as costly in terms of output loss as in non-IT countries. The authors justify this result by the enhanced communication and accountability of the monetary authorities under IT regimes. These results, however, are contested by Brito (2010) who shows that Gonçalves and Carvalho (2009) have only chosen *ad hoc* four IT disinflation periods and compared with costly disinflation periods that have happened earlier with different economic conditions. When the sample is expanded or when economic conditions are employed as controls, the results are inverted: ITers' disinflation are costly in terms of output.

Notwithstanding this ambiguity regarding the real costs of disinflation, there is no denying that lower inflation has, *ceteris paribus*, positive effects on financial stability. A traditional view argues that price stability is also beneficial to financial stability. According to the European Central Bank "price stability contributes to achieving high levels of economic activity and employment by (...) contributing to financial stability".[1] The mechanism through which enhanced financial stability can be reached is simple. According to the Schwartz hypothesis, periods of unstable price levels can lead to wrong inferences about the future real returns of an investment projects. This may result in wrong lending/borrowing decisions, increasing loan defaults, compromising the banking system loan portfolio, and finally leading to bankruptcies. Inflation targeting would improve the cred-

[1] http://www.ecb.europa.eu/mopo/intro/benefits/html/index.en.html.

ibility and predictability of monetary policy, and reduce the degree of uncertainty over the price level in the long run. Bordo and Wheelock (1998) argues that this hypothesis for most of the financial crises of the XIX and XX centuries, by finding that the most severed financial distress events occurred after an unexpected and substantial disinflation.

Despite this overall positive view of IT regimes, that have succeeded in stabilizing inflation, the recent financial crisis has led to criticisms of this policy. The idea in which price stability is not a sufficient condition for financial stability has gained strength. The main argument is that, in their focus of assuring price stability, central banks might have overlooked the situation of the banking system and the housing bubbles (Blanchard et al., 2010). According to Borio et al. (2003), the credibility of the central bank's anti-inflation commitment may lead to a "paradox of credibility" in which unsustainable booms may take longer to be discovered and properly addressed. Several specialists, then, have asked for an improvement of the IT regime to include financial stability in its goal, as well. [2]

Another dimension of the IT critics' argument is related to the monetary policy instrument employed to reach the inflation target: the short-term interest rate. For instance, there is a growing literature that blames loose monetary policy in the years before the crisis for the increase in banks' risk-taking. In a speech, King (2012), the Bank of England's Governor between 2003 and 2013, questions whether UK's overnight rates should have been higher during the pre-crisis period, i.e., whether the monetary authorities should not have been so devout on their IT policy, in order to avoid the banking distress that the country's has faced. The main problem with a expansionary monetary policy is basically the risk-channel of the monetary-policy in which, according to Borio and Zhu (2008), a low short-term interest rate may incentive investors to take more risk to match the necessary returns promised to their debtors. There has been a lot of empirical evidence of this view in the banking literature. Dell'Ariccia et al. (2013) employ a bank-level data on the US banking system to show that bank ex-ante risk taking is negatively correlated with the federal funds rate. This is the same result found by Jimenez et al. (2014) and Ioannidou et al. (2009) employing a detailed borrower-specific data on Spain and Bolivia, respectively, and Tabak et al. (2013) regarding Brazilian banks' loan portfolio quality.

Nevertheless, there are some opposing arguments to IT being blamed for inciting risk-taking through loose monetary policy. First of all, in the same speech, King (2012) recognizes that UK's banks would still have suffered deeply from contagion of the US financial crisis regardless of whether the Bank of England adopted a tight monetary policy. Second, not all developed countries that maintained lower interest rates in the pre-crisis were in fact considered an IT. Take for instance the U.S., where the crisis has originated and whose monetary policy does not explicitly defines an inflation target. Third, agents

[2]The fact that the decision to adopt and maintain an IT regime does not depend on financial stability considerations will be crucial to the identification hypothesis of our empirical model.

would increase risk-taking only if they believe that the policy rate will remain low for a prolonged time. This idea is well explained in Jimenez et al. (2014) and Ioannidou et al. (2009). According to these authors, when rates decrease, banks tend to take more risks on new loans. However, outstanding loans' risk actually decreases because of a wealth effect. We believe that an ITer would not commit to persistent lower interest rates, since this may cause the inflation to deviate from its target, unless the country is in a liquidity trap.

3 Data and Variables

First, we draw our bank-specific data from Bankscope, a financial database distributed by BVD-IBCA and converted it to US dollars, which guarantees accounting uniformity among different countries. To avoid problems with missing data from an specific year, we work with trienniums as the time dimension. In other words, we average relevant balance sheet data by triennium and if there is a missing data for a specific bank and year, we consider as the observation of that triennium the average value of the remaining two years. This proceeding allows us to keep the bank in question for this period. Observations with missing data in all the years of the triennium or with only one observation per triennium are not considered in our analysis.

Initially, our data presented the population of commercial and specialized credit government banks (that act as a commercial bank) listed in the database. We filter our data as follows:

- We exclude bank-triennium observations periods with missing, negative or zero values for relevant balance sheet data;
- We drop country-triennium observations whose banking system aggregate market-share is less than 70% of the original data;
- We drop countries with less than 10 different banks (too small to consider).
- We drop banks with missing country-specific variables explained in the next section.

Our resulting sample is an unbalanced panel data with 3964 banks of 71 countries during the period of 1998 and 2012 (total 5 trienniums) totalizing 15881 observations. To our knowledge, this dataset is one of the most representatives in the banking literature, because of the number of both years and banks.

We are basically interested in determining whether banks from ITers are riskier. To answer this question, we simply employ a fixed effects model in which the dependent variable is a proxy of individual bank fragility and as independent variable, among others, a dummy equal to one if the country is an ITer. Next, we explain with more detail our

dependent and independent variables, as well as which are the sources of some other variables we consider. For detailed information on these variables, check Table 1.

Place Table 1 About Here

3.1 Dependent Variables

Our benchmark measure of financial fragility is the negative of the natural logarithm of the Z-score. Many studies that evaluate bank risk-taking behaviors employ the Z-score as a measure of financial soundness (Mercieca et al., 2007; Laeven and Levine, 2009; Houston et al., 2010; Demirguc-Kunt and Huizinga, 2010). According to Roy (1952), the Z-score measures how distant a specific bank is from insolvency. When equity is not sufficient to cover losses, a bank is insolvent. More specifically, the Z-score is equal to the number of ROA standard deviations a bank's ROA must decrease to surpass equity

$$\text{Z-score} = \frac{\overline{ROA} + \overline{Capital\ Ratio}}{\sigma(ROA)} \tag{1}$$

This measure is often employed in cross-sectional OLS models, where one can calculate the mean and standard deviation of ROA for the whole period. However, we propose to calculate this measure for each of the trienniums to maintain the Z-score as a panel variable. Therefore, rather than eliminating the time dimension of the analysis, this approach reduces the number of periods from 15 to 5.

It is straightforward to show that the Z-score is inversely proportional to the bank's probability of default. Thus, by employing its negative, then the new measure is proportional to the bank's probability of default. Then, our measure is:

$$\text{Financial Fragility}_{it} = -ln(\text{Z-score}_{it}) \tag{2}$$

However, there is a problem in applying the natural logarithm of the Z-score in equation (2) because this variable can take negative values as well. These negative values are possible when the bank's profitability is so negative that it offsets its capital ratio, which is a clear indication that the bank is near insolvency. In our sample, this is the case in 3 observations of two different banks. To solve this problem we follow Bos and Koetter (2009) who employs an additional independent variable, the negative z-score indicator (NZI), that takes the value of 1 when the Z-score ≥ 0 and is equal to the absolute value of the Z-score, when Z-score < 0. We also change the dependent variable to take the value of 1 when it is negative.

We also divide our financial fragility variable into two parts: one related to the return side (Risk-Adjusted Losses) and the other related to the liability side (Leverage). The first is:

$$\text{Risk-Adjusted Losses} = -ln(RAR) = -ln\frac{\overline{ROA}}{\sigma(ROA)} \tag{3}$$

and the second is

$$\text{Leverage} = 1 - \text{Equity Ratio} \tag{4}$$

3.2 Independent variables

Our main impendent variable is a dummy equal to one if the country where a bank is operating is an inflation targeter at triennium t (IT_t). Currently, there are 26 countries that adopt inflation targets. In addition, there are 3 other countries which have already adopted this policy but ceased to. Table 2 shows a list of these countries as well as the year that the IT policy has taken place. These information were taken from Roger (2010) and authors' own research. Note that the majority of ITers are in fact emerging economies.

Place Table 2 About Here

In addition, we measure global illiquidity by employing the TED Spread. It equals the difference between the 3-month LIBOR rate and the 3-month Treasury bill rate. Times where this variable takes large values are marked by turmoil in the world financial markets.

We also include banks' balance-sheet variables. First, as a proxy of bank size, we consider the within-country standardized natural logarithm of assets of bank i at triennium t ($\text{SIZE}_{it}^{Std.}$). In other words, we take a bank total assets subtract the average total assets of the country where it is operating, and divide by its standard deviation. Note that we construct this variable prior to cleaning our database. A systemically important dummy (SIFI_{it}) is derived from this measure. This dummy equals to one if the bank has total assets higher than 2 std. dev. from the country's mean.

Another balance-sheet variable is the liquidity ratio, which is liquid assets divided by total assets. Finally, we consider the costs to assets ratio.

As additional controls, we include countries' economic activity and financial depth variables. The first set of variables are two indices from Herintage Foundation, i.e., property rights and financial freedom indices, and the GDP growth taken from World Bank's WDI. The second set of variables are banking market aggregates calculated from balance-sheet data of Bankscope itself, i.e.: (a) the density of deposits (aggregate deposits to land

area ratio), and (b) the aggregate equity to assets ratio; the domestic credit to private sector (as % of the GDP) taken from the WDI; and a banking market competition proxy known as the Lerner Index. This variable is the price mark-up over marginal costs as % of prices. A value close to zero means that there is almost no overprice and, therefore, the banking market is competitive. A value close to 1, however, means extreme collusion. The literature has widely employed this competition measure due to it's simplicity to estimate it. See A for more information on the estimation. Table 3 shows the Lerner index by country and triennium.

Place Table 3 About Here

4 Empirical Results

In this section, we present the results from our estimations. In all tables, column [1] shows the results without both financial depth and economic activity controls. In column [2], we include only the former and the latter in column [3]. Finally, column [4] displays the results with both set of controls.

Crucial to our analysis is the hypothesis that a country's choice to adopt an IT policy and to maintain this policy is exogenous to banks' soundness considerations. In fact, given the elements of the IT policy, explained in section 2, and recent criticisms that it does not take into account financial stability, we believe that this hypothesis is valid.

4.1 Are banks from IT countries more stable?

Table 4 shows the regressions of our bank-specific financial fragility variable against a series of variables and a dummy equal to one if the country is an inflation targeter.

Place Table 4 About Here

The IT dummy is found to be significant and negative, meaning that countries that adopt inflation targets have, on average, less fragile banks. Note that this result holds even when we control for financial depth and/or economic activities proxies. Therefore, it appears that there is a channel from price stability (together with increased Central Bank communication and accountability) to banking system soundness.

Place Table 5 About Here

When we disaggregate the dependent variable (Table 5), we observe that the coefficient only remains significant when the dependent variable is Risk-Adjusted Losses. The effect of the dummy on average leverage is not significant. Therefore, one can clearly see the price stability channel, in which the Central Banks' commitment to maintain inflation close to its target allows banks to have higher and less variable returns, i.e., profits are more predictable.

4.2 Are banks from IT countries more stable in times of global illiquidity?

Table 6 shows the results when we add an interaction between the TED Spread and the inflation target dummy to the benchmark specification.

Place Table 6 About Here

This interaction is negatively significant in all specifications. In other words, banks from ITers are less vulnerable to changes in global liquidity. This is another evidence of the price stability channel, since banks from ITers are more reliant to global liquidity shocks as well. Since the financial crisis of 2007-08 is when financial distress was in the highest levels, this result shows that IT cannot be blamed by letting the build up of financial imbalances, contrary to what is advocated by recent IT criticizers.

Place Table 7 About Here

4.3 Are systemically important banks from IT countries more stable?

Another relevant question is whether ITers "let" systemically important banks take more risks than those from non-ITers. Table 8 displays the results where we include a systemically important dummy, equal to one if the bank is more than 2 std. dev. from the country's average total assets. We also add an interaction between this dummy and the IT dummy.

Place Table 8 About Here

We can see that systemically important banks from ITers are more stable and this result holds for all specifications. This is quite an startling result, since it counters the argument that when the authorities are pursuing price stability, they let these banks increase their leverage and their risk-exposure. What can be interpreted by these results is that, on average, large banks do not appear to incur in a moral hazard behavior.

Place Table 9 About Here

Indeed, this result is coming from both lower risk-adjusted losses and lower leverage, as Table 9 shows. Not only the price stability is granting large banks stable returns, but they are also curbing incentives towards a risk-taking behavior as measured by the leverage level of the bank.

5 Robustness Tests

5.1 Legal Origins

In this section, we choose to compare banking systems of countries with the same legal origin. We also present our results from last section disaggregated by legal origins. It is largely accepted by the literature that countries with the same legal origin are subject to similar (not necessarily equal) constraints, which may affect the development and the functioning of banking markets among these groups of countries (Levine, 1998; Beck et al., 2003). In addition, there may be difference in central bank communication and credibility among these countries. For instance, Horvath and Vasko (2013) show that German and Nordic countries' central banks are often more transparent than countries with other legal origins.

We aggregate countries into 3 groups: English, French, and German/Nordic. In order to divide countries into their legal origins, we follow the papers by La-Porta et al. (1997, 1998, 2008) and Djankov et al. (2003), complement the information by checking the CIA World Factbook, and finally we also do our own research. Note that ex-socialist countries are transition economies that are returning to their original legal system, as La-Porta et al. (2008) arguments. Therefore, we list these transitional economics according to their original legal origin, instead of attributing them to a socialist legal system. Table 3 shows the countries in our database and their legal origins.

Therefore, in this section we ask whether our previous results hold when we compare countries with similar legal systems. We present, therefore, the same regressions of the last section now divided by legal origins (English, French, and German/Nordic).

Place Tables 10, 11, and 12 About Here

Table 10 shows that the coefficients for inflation targeting are significant and negative for all specifications and legal origins. Thus, ITers have stronger banking systems even if compared with other countries with similar characteristics. Note, however, that the coefficients of German/Nordic countries are greater in magnitude, showing that the difference between ITers and non-ITers is larger for this group of countries. The second in magnitude are the coefficients comes from English legal origin countries, and finally French.

Results from Table 11, however, are slightly different. The coefficients of the interaction between TED Spread and dummy variable Inf. Target are only significant in columns [1] and [3] (when we do not include financial depth variables) for English legal origin. For French countries, the coefficients are always negative but insignificant with the exception of the first column. For German/Nordic countries, coefficients are always negative but only significant in column [3]. Note that this result does not validate the alternative hypothesis, since insignificant interactions mean that ITers are not more or less financial fragile than their legal origin peers.

In Table 12, the interaction between $SIFI_{it}$ and Inf. Target is negative and significant in all four columns of English and French legal origins. For German/Nordic countries, all coefficients are insignificant. Again, systemically important banks from IT are or more stable than (English and French) or as stable as (German) non-ITers.

Overall, results appear to be consistent with our benchmark model. Even though there are some differences, specially in the statistical significance of coefficients, ITers appear to have a more sound financial system even if compared with countries with similar legal environment.

5.2 Supervision as a responsibility of the Central Bank

As a further robustness test, we take into account if the country has an institutional body, outside the central bank, that supervises banks. The argument of IT criticizers is that central banks from IT countries may be too focused in reducing inflation that it may not give sufficient attention to the well-functioning of the financial system. This argument would be more fragile in the case where the supervisory body is outside the central bank.

Therefore, in this section, we propose to test whether banks from IT countries where the central bank also holds supervisory power over the financial system are more fragile, as recent specialists say. To do so, we employ a database from Barth et al. (2001, 2004, 2008, 2013) that characterizes the regulation and supervision of several countries in the world. The variable that we need is in the question 12.1.1 from the surveys of 2008 and

2011 which ask whether the central bank has the responsibility to supervise banks. This database, however, has some shortcomings: (a) it does not cover all the countries in our database; (b) there are missing data in some of their surveys; (c) the survey questions regarding whether the supervisory body is separated from the central bank changes from the 2000 and 2003 to the 2008 and 2011 surveys.

Due to this last problem, we choose to work as follows. We consider the answer to the 2011 survey as the information for the last triennium (2010-2012), and the answer to the 2008 is considered to be the information for all the remaining trienniums. We do so, because of the change in methodology after the 2003 survey that we need to address with further investigation. Anyway, this procedure is an approximation and can be considered as a first look into this question. Since there are some missing data and countries that are not covered by the database, the number of countries in our analysis reduces to 68 and the number of banks reduces to 3802.

We then create a new IT dummy that is equal to one if the country is an ITer and the Central Bank is responsible for bank supervision, as well. Therefore, this new variable is to be understood as a test to whether the central bank holding both functions would, then, be careless regarding the financial system.

In unreported results, we find that this is not the case. For banks in which the new Inf. Target dummy equals one – i.e. in which the country is an inflation targeter and the central bank is responsible for bank supervision – stability is still higher, as well as resilience to international financial shocks. Systemically important banks, however, do not seem to be less fragile in these countries, since their coefficients are insignificant, even though still negative.[3]

6 Final Summary

In this paper, we bring new evidence to the topic of inflation targeting and financial stability. We employ data of almost 4000 banks from 71 countries in the period of 1998-2012 to answer whether banks from IT countries are more fragile than in non-IT countries. Our motivation is the recent criticism towards IT policy. Specialists argue that by not considering the impacts of the monetary policy on financial stability, ITers have disregarded the development of financial imbalances, such as bubbles and excessive leverage, which increased the probability of financial distress.

We point out that in what regards bank soundness this view may not be entirely true. Indeed, IT countries have sounder banks, on average, which means that they can stabilize their banking sectors through the reduction of prices volatility and stronger Central Banks' communication and accountability. We also find that banks from ITers are also more

[3]Results are available upon request

resilient in times of financial turmoil. This finding gives more evidence to the channel from price to financial stability. Finally, the systemically important banks of ITers appear to be less susceptible to be taking more risks, i.e., their returns are higher and less variable, and their leverage is lower if compared with other SIFIs.

Our results are somewhat robust to two alternative specifications. First, when we compare banks only with those that are subject to similar legal constraints, the advantage of price stability is still evident. Second, results are almost the same even if the country has a Central Bank whose responsibility is both supervising banks and maintaining the inflation on the target. We conclude that there is no trade-off between financial stability and the directives of the IT policy even in this case.

Note that we are not saying that CBs only objective must be to attain and to maintain price stability, nor that there are no trade-offs between monetary policy and financial stability. We are only affirming that over the last 15 years, on average, IT countries' banking systems are not more fragile than non-ITers. In fact, there is evidence that banks from IT are more resilient than those from other countries.

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Table 1: Formal description of the relevant variables employed in our model

Variable	Description	Variable	Description
DEPENDENT VARIABLES			
Financial Fragility	The negative of the natural logarithm of the Z-Score. The Z-score is the ratio between the sum of the three year-averages of ROA and Equity Ratio, and the standard deviation of ROA in these years as in equation (1	Property Rights Index	attributes a value for each country and each year from 0 (worst case) to 1 (best case)
		Financial Freedom Index	attributes a value for each country and each year from 0 (worst case) to 1 (best case)
Risk-Adj. Losses	The negative of the natural logarithm of RAR. This last is defined as the ratio between the three-year average of ROA and the standard deviation of ROA as in equation (**??**)	Dom. Credit to Priv. Sector$_t$	financial resources provided to the private sector as % of the GDP.
Leverage	One minus the average equity ratio in the triennium as in equation (4)	Deposits per Km Sq$_t$	Aggregate country's deposits in commercial banks divided by land area in squared kilometers
INDEPENDENT VARIABLES			
Inf. Target	A dummy equal to one if the country where bank i is operating is an inflation targeter at triennium t (Source: Roger (2009) and authors' own research)	Agg. Equity to Assets Ratio$_t$	Ratio between aggregate country's equity and total assets
		NZI	takes the value of 1 when the Z-score ≥ 0 the absolute value of the Z-score, when Z-score < 0
TED Spread	the difference between the 3-month LIBOR rate and the 3-month Treasury bill rate		
Lerner Index$_t$	the assets-weighted bank-specific lerner index (mark-up), this last estimated as in equation (6)	NRI	takes the value of 1 when RAR ≥ 0 and is equal to the absolute value of RAR, when RAR < 0
$SIZE_{it}^{Std.}$	the natural logarithm of bank i average total assets at triennium t standardized within each country	2 Obs per triennium$_{it}$	Dummy equal to one if the bank in question has relevant data for only two years of triennium t.
SIFI$_{it}$	A dummy equal to one if the bank has total assets higher than two standard deviations from the country's average, i.e.: $SIZE_{it}^{Std.}$¿ 2		
Liquidity Ratio$_{it}$	Total liquid assets to total assets ratio of bank i averaged at triennium t		
Cost to Assets$_{it}$	Total expenses to total assets ratio of bank i averaged at triennium t		
GDP Growth	Real GDP growth in (%). Source: World Bank's WDI		

Table 2: Countries that Adopt Inflation Targets

Country Name	Year of Adoption
New Zealand[a]	1990
Canada	1991
United Kingdom	1992
Sweden	1993
Australia	1993
Finland[b]	1993 until 1998
Spain[b]	1995 until 1998
Czech Republic	1997
Israel[a]	1997
Poland	1998
Brazil	1999
Chile	1999
Colombia	1999
South Africa	2000
Thailand	2000
Republic of Korea	2001
Mexico	2001
Iceland[a]	2001
Norway[a]	2001
Hungary	2001
Peru	2002
Philippines	2002
Guatemala	2005
Indonesia	2005
Romania	2005
Slovakia[b]	2005 until 2008
Turkey	2006
Serbia[a]	2006
Ghana	2007

List taken from Roger (2010) and authors' own research. [a] Countries that are not in our database. [b] Countries that have abandoned the IT regime after adopting the Euro.

Table 3: Countries, Legal Origins and Lerner Index

This table displays the countries in our database; their legal origins; number of banks in our final database; the lerner index by triennium calculated as in equation (6); and a ranking of banking systems by their average competition levels. Missing values for the Lerner Index means that that triennium does not meet our selection criteria for the country in question.

			Lerner Index					
Country Name	Legal Origin	N. of Banks	1998-2000	2001-2003	2004-2006	2007-2009	2010-2012	Rank Competition
AUSTRALIA	English	24	0.756	0.767	0.823	0.876	0.895	66
BANGLADESH	English	27				0.597	0.413	22
CANADA	English	37	0.713	0.800	0.823	0.777		63
GHANA	English	18	0.792	0.827	0.862	0.828	0.871	67
HONG KONG	English	26			0.363	0.493	0.419	12
INDIA	English	65	0.355	0.659	0.739	0.656	0.705	42
KENYA	English	30	0.547	0.607	0.797	0.783	0.809	55
MALAYSIA	English	29	0.591	0.702	0.771	0.830	0.842	61
NIGERIA	English	46	0.504	0.579	0.521	0.489	0.503	25
PAKISTAN	English	29	0.501	0.481	0.363	0.162	0.230	8
SOUTH AFRICA	English	17	0.679	0.740	0.823	0.722	0.675	58
SRI LANKA	English	11	0.113	0.116	0.349	0.445	0.465	5
THAILAND	English	24	0.014	0.122	0.350	0.481	0.521	6
UGANDA	English	14		0.493	0.543	0.611	0.672	30
UNITED ARAB EMIRATES	English	18	0.477	0.582	0.733	0.740	0.761	47
UNITED KINGDOM	English	93	0.611	0.626	0.755	0.630	0.804	51
UNITED REPUBLIC OF TANZANIA	English	22		0.623	0.692	0.552	0.479	33
UNITED STATES OF AMERICA	English	459	0.835	0.865	0.861	0.850	0.889	68
ARGENTINA	French	56	0.662	0.552	0.620			39
ARMENIA	French	16		0.574	0.468	0.278	0.221	9
AZERBAIJAN	French	17	0.407	0.651	0.655	0.659	0.784	44
BELGIUM	French	26	0.308	0.409	0.597	0.639	0.616	23
BOLIVIA	French	12	0.590	0.625	0.648	0.745	0.782	49
BRAZIL	French	85			0.881	0.833	0.905	69
CHILE	French	27	0.381	0.503	0.593	0.696	0.776	34
COLOMBIA	French	28	0.545	0.618	0.699	0.864	0.911	57
COSTA RICA	French	20	0.216	0.639	0.693	0.652	0.680	29
DOMINICAN REPUBLIC	French	38			-0.284	-0.039	0.458	2
ECUADOR	French	20		0.098	0.258	0.678	0.776	15
EGYPT	French	27	0.688	0.658	0.710	0.721	0.745	54
FRANCE	French	134	0.578	0.611	0.610	0.604	0.598	36
GUATEMALA	French	27		0.431	0.627	0.834	0.922	52
INDONESIA	French	63	0.365	0.493	0.640	0.728	0.796	37
ITALY	French	112		0.599	0.389	0.198	-0.016	4
JORDAN	French	10	0.491	0.505	0.658	0.721	0.755	43
LUXEMBOURG	French	78	0.509	0.532	0.660	0.731	0.732	45
MEXICO	French	36	0.562	0.590	0.702	0.758	0.805	50
PANAMA	French	35				0.582	0.765	48
PARAGUAY	French	19	0.437	0.777	0.808	0.803	0.859	59
PERU	French	19	1.120	1.006	0.962	0.978	0.937	71
PHILIPPINES	French	28	0.244	0.288	0.560	0.644	0.753	19
PORTUGAL	French	20		0.227	0.508	0.467	0.563	14
REPUBLIC OF MOLDOVA	French	16	0.601	0.574	0.779	0.575	0.656	46
ROMANIA	French	23	-0.457	-0.065	0.537	0.729	0.798	7
RUSSIAN FEDERATION	French	856		0.574	0.583	0.633	0.630	38
SPAIN	French	56	0.317	0.528	0.366	0.516	0.624	16
TUNISIA	French	13	0.465	0.453	0.480	0.471	0.512	17
TURKEY	French	26	0.348	0.404	0.440	0.612	0.702	21
UKRAINE	French	32		0.464	0.330	0.385		11
URUGUAY	French	16			0.709	0.788	0.772	62
VENEZUELA	French	33	0.808	0.783	0.817	0.738	0.853	64
VIET NAM	French	30				0.619	0.627	41
AUSTRIA	German/Nordic	53	0.552	0.515	0.537	0.617	0.687	31
BELARUS	German/Nordic	13		-0.113	0.004	0.109	0.196	3
BULGARIA	German/Nordic	24	0.204	0.453	0.642	0.582	0.612	20
CHINA	German/Nordic	113			0.320	0.448	0.404	10
CROATIA	German/Nordic	38	0.255	0.383	0.424	0.550	0.584	13
CZECH REPUBLIC	German/Nordic	21	0.089	0.381	0.648	0.678	0.784	24
DENMARK	German/Nordic	53	0.561	0.625	0.738	0.768	0.827	53
FINLAND	German/Nordic	9		0.443	0.893	0.894	0.973	65
German/NordicY	German/Nordic	127	0.407	0.437	0.583	0.769	0.796	35
HUNGARY	German/Nordic	25	0.438	0.529	0.568	0.656	0.593	28
JAPAN	German/Nordic	135	0.086	0.441	0.558	0.647	0.726	18
LATVIA	German/Nordic	21		0.491	0.598	0.625	0.613	32
POLAND	German/Nordic	47	0.335	0.469	0.731	0.754	0.793	40
REPUBLIC OF KOREA	German/Nordic	17	0.392	0.462	0.602	0.644	0.622	27
SLOVAKIA	German/Nordic	15	0.348	0.564	0.550	0.716		26
SLOVENIA	German/Nordic	14	0.655	0.738	0.769	0.824	0.740	60
SWEDEN	German/Nordic	23	0.472	0.619	0.848	0.794	0.815	56
SWITZERLAND	German/Nordic	131			0.862	0.879	0.897	70
TAIWAN	German/Nordic	42	-0.434	-0.519	-0.279	-0.351		1

Table 4: Are banks from IT countries more stable?

This table presents the fixed-effects regression of a measure of financial fragility (the negative of the natural log of the Z-score) against a set of control variables, explained in Table 1. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per triennium$_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Fin. Fragility	[2] Fin. Fragility	[3] Fin. Fragility	[4] Fin. Fragility
Inf. Target$_t$	-0.777***	-0.540***	-0.562***	-0.420***
	(0.077)	(0.076)	(0.078)	(0.078)
TED Spread$_t$	0.382***	0.204***	0.365***	0.216***
	(0.021)	(0.023)	(0.021)	(0.023)
SIZE$_{it}^{Std.}$	-0.054	-0.014	-0.071	-0.031
	(0.046)	(0.046)	(0.046)	(0.046)
Liquidity Ratio$_{it}$	0.313**	0.379***	0.358***	0.389***
	(0.122)	(0.120)	(0.120)	(0.120)
Cost to Assets$_{it}$	0.399***	0.151*	0.373***	0.169*
	(0.108)	(0.090)	(0.105)	(0.092)
Property Rights Index$_t$		0.281		0.337
		(0.238)		(0.241)
Financial Freedom Index$_t$		-0.997***		-0.945***
		(0.157)		(0.156)
GDP Growth$_t$ (in %)		-0.089***		-0.077***
		(0.005)		(0.005)
Lerner Index$_t$			-0.739***	-0.619***
			(0.114)	(0.113)
Dom. Credit to Priv. Sector$_t$			0.006***	0.003***
			(0.001)	(0.001)
Deposits per Km Sq$_t$			-0.000***	-0.000***
			(0.000)	(0.000)
Agg. Equity to Assets Ratio$_t$			-2.445***	-1.687**
			(0.681)	(0.677)
Trend	0.101***	0.184***	0.163***	0.244***
	(0.035)	(0.037)	(0.039)	(0.041)
Trend Sq.	-0.014**	-0.030***	-0.024***	-0.037***
	(0.005)	(0.006)	(0.005)	(0.006)
2 Obs per triennium$_{it}$	-0.185***	-0.168***	-0.201***	-0.180***
	(0.041)	(0.040)	(0.041)	(0.040)
lnNZI$_{it}$	-2.803***	-2.666***	-2.756***	-2.646***
	(0.889)	(0.859)	(0.875)	(0.852)
Constant	-3.715***	-3.006***	-3.760***	-3.009***
	(0.064)	(0.171)	(0.123)	(0.192)
Observations	13,663	13,663	13,663	13,663
R-squared	0.064	0.093	0.080	0.100
Number of Banks	3,964	3,964	3,964	3,964

Table 5: Are banks from IT countries more stable? Disaggregation of Financial Fragility

This table presents the fixed-effects regression of both the Risk-Adj. Losses and Leverage against a set of control variables, explained in Table 1. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per triennium$_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Risk-Adj. Losses	[2] Risk-Adj. Losses	[3] Risk-Adj. Losses	[4] Risk-Adj. Losses
Inf. Target$_t$	-0.435***	-0.253***	-0.256***	-0.151***
	(0.050)	(0.051)	(0.052)	(0.053)
Observations	13,663	13,663	13,663	13,663
R-squared	0.147	0.175	0.166	0.185
Number of Banks	3,964	3,964	3,964	3,964
Variables	[1] Leverage	[2] Leverage	[3] Leverage	[4] Leverage
Inf. Target$_t$	-0.002	-0.001	-0.002	-0.001
	(0.004)	(0.004)	(0.004)	(0.004)
Observations	13,663	13,663	13,663	13,663
R-squared	0.163	0.165	0.171	0.174
Number of Banks	3,964	3,964	3,964	3,964
Controls				
Financial Depth	No	No	Yes	Yes
Economic Activity & Freedom	No	Yes	No	Yes

Table 6: Are banks from IT countries more stable in times of global illiquidity?

This table presents the fixed-effects regression of a measure of financial fragility (the negative of the natural log of the Z-score) against a set of control variables, explained in Table 1. We also include a interaction between the TED Spread and Inf. Target, so as to provide evidence to our second question: whether banks from ITers are resilient in times of global uncertainty. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per triennium$_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Fin. Fragility	[2] Fin. Fragility	[3] Fin. Fragility	[4] Fin. Fragility
Inf. Target$_t$	-0.710***	-0.475***	-0.485***	-0.348***
	(0.079)	(0.079)	(0.082)	(0.081)
TED Spread$_t$	0.404***	0.225***	0.390***	0.239***
	(0.023)	(0.025)	(0.023)	(0.024)
TED Spread$_t$ * Inf. Target$_t$	-0.118**	-0.113**	-0.134***	-0.125**
	(0.051)	(0.051)	(0.050)	(0.050)
SIZE$_{it}^{Std.}$	-0.055	-0.014	-0.072	-0.031
	(0.046)	(0.046)	(0.046)	(0.046)
Liquidity Ratio$_{it}$	0.306**	0.373***	0.351***	0.383***
	(0.122)	(0.120)	(0.120)	(0.120)
Cost to Assets$_{it}$	0.381***	0.135	0.350***	0.151*
	(0.107)	(0.090)	(0.104)	(0.091)
Property Rights Index$_{tt}$		0.285		0.342
		(0.238)		(0.241)
Financial Freedom Index$_t$		-1.011***		-0.962***
		(0.157)		(0.156)
GDP Growth$_t$ (in %)		-0.089***		-0.077***
		(0.005)		(0.005)
Lerner Index$_t$			-0.736***	-0.617***
			(0.114)	(0.113)
Dom. Credit to Priv. Sector$_{tt}$			0.006***	0.003***
			(0.001)	(0.001)
Deposits per Km Sq$_t$			-0.000***	-0.000***
			(0.000)	(0.000)
Agg. Equity to Assets Ratio$_t$			-2.492***	-1.744**
			(0.681)	(0.678)
Trend	0.103***	0.185***	0.164***	0.245***
	(0.035)	(0.037)	(0.039)	(0.041)
Trend Sq.	-0.014**	-0.031***	-0.024***	-0.037***
	(0.005)	(0.006)	(0.005)	(0.006)
2 Obs per triennium$_{it}$	-0.185***	-0.168***	-0.201***	-0.181***
	(0.041)	(0.040)	(0.041)	(0.041)
lnNZI$_{it}$	-2.807***	-2.670***	-2.761***	-2.651***
	(0.889)	(0.860)	(0.875)	(0.852)
Constant	-3.725***	-3.012***	-3.773***	-3.017***
	(0.064)	(0.171)	(0.123)	(0.192)
Observations	13,663	13,663	13,663	13,663
R-squared	0.064	0.093	0.081	0.100
Number of Banks	3,964	3,964	3,964	3,964

Table 7: Are banks from IT countries more stable in times of global illiquidity? Disaggregation of Financial Fragility

This table presents the fixed-effects regression of both the Risk-Adj. Losses and Leverage against a set of control variables, explained in Table 1. We also include a interaction between the TED Spread and Inf. Target, so as to provide evidence to our second question: whether banks from ITers are resilient in times of global uncertainty. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per triennium$_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Risk-Adj. Losses	[2] Risk-Adj. Losses	[3] Risk-Adj. Losses	[4] Risk-Adj. Losses
Inf. Target$_t$	-0.382***	-0.204***	-0.197***	-0.096*
	(0.053)	(0.055)	(0.056)	(0.057)
TED Spread	0.306***	0.169***	0.296***	0.182***
	(0.017)	(0.019)	(0.017)	(0.019)
TED Spread * Inf. Target$_t$	-0.093**	-0.088**	-0.105***	-0.095**
	(0.040)	(0.040)	(0.040)	(0.040)
Observations	13,663	13,663	13,663	13,663
R-squared	0.148	0.175	0.167	0.185
Number of Banks	3,964	3,964	3,964	3,964
Variables	[1] Leverage	[2] Leverage	[3] Leverage	[4] Leverage
Inf. Target$_t$	-0.004	-0.002	-0.004	-0.002
	(0.004)	(0.004)	(0.004)	(0.004)
TED Spread	-0.004***	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)
TED Spread * Inf. Target$_t$	0.004*	0.003	0.003	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
Observations	13,663	13,663	13,663	13,663
R-squared	0.164	0.165	0.171	0.174
Number of Banks	3,964	3,964	3,964	3,964
Controls				
Financial Depth	No	No	Yes	Yes
Economic Activity & Freedom	No	Yes	No	Yes

Table 8: Are systemically important banks from IT countries more stable?

This table presents the fixed-effects regression of a measure of financial fragility (the negative of the natural log of the Z-score) against a set of control variables, explained in Table 1. We also include a interaction between $SIFI_{it}$ and Inf. Target, so as to provide evidence to our third question: whether systemic banks from ITers take more risks. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per $triennium_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Fin. Fragility	[2] Fin. Fragility	[3] Fin. Fragility	[4] Fin. Fragility
Inf. $Target_t$	-0.767***	-0.524***	-0.558***	-0.409***
	(0.076)	(0.076)	(0.078)	(0.078)
TED $Spread_t$	0.376***	0.203***	0.358***	0.213***
	(0.020)	(0.022)	(0.020)	(0.022)
$SIFI_{it}$	0.211***	0.176**	0.179**	0.154*
	(0.082)	(0.080)	(0.081)	(0.079)
$SIFI_{it}$ * Inf. $Target_t$	-0.501***	-0.509***	-0.481***	-0.485***
	(0.165)	(0.152)	(0.165)	(0.155)
Liquidity $Ratio_{it}$	0.342***	0.394***	0.394***	0.410***
	(0.121)	(0.120)	(0.120)	(0.119)
Cost to $Assets_{it}$	0.395***	0.148	0.376***	0.171*
	(0.109)	(0.091)	(0.106)	(0.092)
Property Rights $Index_{tt}$		0.306		0.364
		(0.236)		(0.241)
Financial Freedom $Index_t$		-1.028***		-0.984***
		(0.155)		(0.155)
GDP $Growth_t$ (in %)		-0.089***		-0.077***
		(0.005)		(0.005)
Lerner $Index_t$			-0.723***	-0.605***
			(0.114)	(0.113)
Dom. Credit to Priv. $Sector_{tt}$			0.006***	0.003***
			(0.001)	(0.001)
Deposits per Km Sq_t			-0.000***	-0.000***
			(0.000)	(0.000)
Agg. Equity to Assets $Ratio_t$			-2.270***	-1.625**
			(0.666)	(0.665)
Trend	0.092***	0.180***	0.148***	0.237***
	(0.035)	(0.037)	(0.038)	(0.041)
Trend Sq.	-0.014***	-0.031***	-0.025***	-0.037***
	(0.005)	(0.005)	(0.005)	(0.006)
2 Obs per $triennium_{it}$	-0.182***	-0.168***	-0.195***	-0.179***
	(0.041)	(0.040)	(0.041)	(0.040)
$lnNZI_{it}$	-2.809***	-2.666***	-2.766***	-2.650***
	(0.887)	(0.857)	(0.874)	(0.850)
Constant	-3.710***	-3.010***	-3.781***	-3.025***
	(0.063)	(0.172)	(0.123)	(0.192)
Observations	13,663	13,663	13,663	13,663
R-squared	0.064	0.093	0.080	0.100
Number of Banks	3,964	3,964	3,964	3,964

Table 9: Are systemically important banks from IT countries more stable? Disaggregation of Financial Fragility

This table presents the fixed-effects regression of both the Risk-Adj. Losses and Leverage against a set of control variables, explained in Table 1. We also include a interaction between $SIFI_{it}$ and Inf. Target, so as to provide evidence to our third question: whether systemic banks from ITers take more risks. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per $triennium_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Risk-Adj. Losses	[2] Risk-Adj. Losses	[3] Risk-Adj. Losses	[4] Risk-Adj. Losses
Inf. $Target_t$	-0.442***	-0.250***	-0.270***	-0.154***
	(0.049)	(0.051)	(0.052)	(0.053)
$SIFI_{it}$	0.174***	0.142**	0.149**	0.123*
	(0.066)	(0.064)	(0.064)	(0.063)
$SIFI_{it}$ * Inf. $Target_t$	-0.444***	-0.459***	-0.430***	-0.437***
	(0.148)	(0.136)	(0.148)	(0.139)
Observations	13,663	13,663	13,663	13,663
R-squared	0.145	0.173	0.163	0.183
Number of Banks	3,964	3,964	3,964	3,964
Variables	[1] Leverage	[2] Leverage	[3] Leverage	[4] Leverage
Inf. $Target_t$	0.009**	0.006	0.009**	0.007*
	(0.004)	(0.004)	(0.004)	(0.004)
$SIFI_{it}$	0.004	0.004	0.004	0.005
	(0.004)	(0.004)	(0.004)	(0.004)
$SIFI_{it}$ * Inf. $Target_t$	-0.013*	-0.011	-0.014**	-0.013**
	(0.007)	(0.007)	(0.006)	(0.006)
Observations	13,663	13,663	13,663	13,663
R-squared	0.011	0.013	0.028	0.029
Number of Banks	3,964	3,964	3,964	3,964
Controls				
Financial Depth	No	No	Yes	Yes
Economic Activity & Freedom	No	Yes	No	Yes

Table 10: Are banks from IT countries more stable? Disaggregation by legal origin

This table presents the fixed-effects regression of a measure of financial fragility (the negative of the natural log of the Z-score) against a set of control variables, explained in Table 1. We divide countries by their legal origin, i.e., whether it is English, French or German/Nordic. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per triennium$_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Fin. Fragility	[2] Fin. Fragility	[3] Fin. Fragility	[4] Fin. Fragility
English				
Inf. Target$_t$	-1.122***	-0.455**	-0.917***	-0.426**
	(0.202)	(0.189)	(0.170)	(0.183)
Observations	3,762	3,762	3,762	3,762
R-squared	0.114	0.162	0.137	0.168
Number of Banks	989	989	989	989
French				
Inf. Target$_t$	-0.586***	-0.445***	-0.381***	-0.354***
	(0.087)	(0.086)	(0.087)	(0.088)
Observations	6,519	6,519	6,519	6,519
R-squared	0.059	0.081	0.079	0.090
Number of Banks	2,054	2,054	2,054	2,054
German/Nordic				
Inf. Target$_t$	-0.844***	-0.871***	-0.901***	-0.819***
	(0.210)	(0.210)	(0.211)	(0.203)
Observations	3,382	3,382	3,382	3,382
R-squared	0.082	0.125	0.127	0.159
Number of Banks	921	921	921	921
Controls				
Financial Depth	No	No	Yes	Yes
Economic Activity & Freedom	No	Yes	No	Yes

Table 11: Are banks from IT countries more stable in times of global illiquidity? Disaggregation by legal origin

This table presents the fixed-effects regression of a measure of financial fragility (the negative of the natural log of the Z-score) against a set of control variables, explained in Table 1. We also include a interaction between the TED Spread and Inf. Target, so as to provide evidence to our second question: whether banks from ITers are resilient in times of global uncertainty. We divide countries by their legal origin, i.e., whether it is English, French or German/Nordic. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per triennium$_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Fin. Fragility	[2] Fin. Fragility	[3] Fin. Fragility	[4] Fin. Fragility
English				
Inf. Target$_t$	-1.025***	-0.399**	-0.755***	-0.344*
	(0.207)	(0.197)	(0.180)	(0.190)
TED Spread	0.545***	0.211***	0.447***	0.202***
	(0.050)	(0.054)	(0.051)	(0.054)
TED Spread * Inf. Target$_t$	-0.164*	-0.097	-0.264***	-0.146
	(0.097)	(0.094)	(0.096)	(0.096)
Observations	3,762	3,762	3,762	3,762
R-squared	0.115	0.163	0.139	0.169
Number of Banks	989	989	989	989
French				
Inf. Target$_t$	-0.513***	-0.388***	-0.326***	-0.309***
	(0.091)	(0.091)	(0.092)	(0.094)
TED Spread	0.279***	0.130***	0.237***	0.135***
	(0.032)	(0.036)	(0.033)	(0.036)
TED Spread * Inf. Target$_t$	-0.132*	-0.098	-0.106	-0.082
	(0.069)	(0.069)	(0.069)	(0.070)
Observations	6,519	6,519	6,519	6,519
R-squared	0.059	0.081	0.079	0.091
Number of Banks	2,054	2,054	2,054	2,054
German/Nordic				
Inf. Target$_t$	-0.752***	-0.836***	-0.778***	-0.766***
	(0.213)	(0.213)	(0.213)	(0.206)
TED Spread	0.433***	0.237***	0.493***	0.304***
	(0.044)	(0.046)	(0.045)	(0.049)
TED Spread * Inf. Target$_t$	-0.162	-0.059	-0.214*	-0.088
	(0.117)	(0.121)	(0.121)	(0.124)
Observations	3,382	3,382	3,382	3,382
R-squared	0.082	0.125	0.128	0.159
Number of Banks	921	921	921	921
Controls				
Financial Depth	No	No	Yes	Yes
Economic Activity & Freedom	No	Yes	No	Yes

Table 12: Are systemically important banks from IT countries more stable? Disaggregation by legal origin

This table presents the fixed-effects regression of a measure of financial fragility (the negative of the natural log of the Z-score) against a set of control variables, explained in Table 1. We also include a interaction between $SIFI_{it}$ and Inf. Target, so as to provide evidence to our third question: whether systemic banks from ITers take more risks. We divide countries by their legal origin, i.e., whether it is English, French or German/Nordic. The subscript t refers to trienniums, and i to banks. Balance-sheet and country-specific data are averaged over trienniums. We include the dummy "2 Obs per $triennium_{it}$", when there are only two year observations to be averaged for a particular bank and triennium. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Variables	[1] Fin. Fragility	[2] Fin. Fragility	[3] Fin. Fragility	[4] Fin. Fragility
English				
Inf. $Target_t$	-1.132***	-0.467**	-0.910***	-0.439**
	(0.198)	(0.191)	(0.168)	(0.183)
$SIFI_{it}$	0.130	0.085	0.108	0.078
	(0.114)	(0.106)	(0.110)	(0.105)
$SIFI_{it}$ * Inf. $Target_t$	-0.602***	-0.732***	-0.857***	-0.802***
	(0.223)	(0.214)	(0.228)	(0.220)
Observations	3,762	3,762	3,762	3,762
R-squared	0.113	0.164	0.138	0.170
Number of Banks	989	989	989	989
French				
Inf. $Target_t$	-0.561***	-0.421***	-0.360***	-0.333***
	(0.087)	(0.087)	(0.088)	(0.089)
$SIFI_{it}$	0.290**	0.284**	0.298**	0.293**
	(0.135)	(0.132)	(0.133)	(0.131)
$SIFI_{it}$ * Inf. $Target_t$	-0.538**	-0.440*	-0.430**	-0.369*
	(0.243)	(0.227)	(0.215)	(0.212)
Observations	6,519	6,519	6,519	6,519
R-squared	0.060	0.082	0.080	0.092
Number of Banks	2,054	2,054	2,054	2,054
German/Nordic				
Inf. $Target_t$	-0.810***	-0.870***	-0.916***	-0.851***
	(0.211)	(0.209)	(0.210)	(0.201)
$SIFI_{it}$	0.079	-0.052	-0.048	-0.134
	(0.196)	(0.192)	(0.192)	(0.187)
$SIFI_{it}$ * Inf. $Target_t$	-0.345	-0.332	-0.361	-0.362
	(0.570)	(0.469)	(0.535)	(0.459)
Observations	3,382	3,382	3,382	3,382
R-squared	0.080	0.125	0.127	0.158
Number of Banks	921	921	921	921
Controls				
Financial Depth	No	No	Yes	Yes
Economic Activity & Freedom	No	Yes	No	Yes

A Lerner Index

We employ the Lerner Index as a measure of competition. It measures the mark-up charged by banks for their financial services. In other words:

$$Lerner = \frac{p_{it} - mc_{it}}{p_{it}} \tag{5}$$

where p_{it} is the price charged and mc_{it} the marginal cost.

We proxy p_{it} by the ratio of Total Revenues and Total Assets. The marginal cost is estimated through the following translog function:

$$\begin{aligned} \ln\left(\frac{C}{w_2}\right)_{it} &= \delta_0 + \delta_1 \ln y_{it} + \frac{1}{2} + \delta_2 \ln y_{it} \ln y_{it} + \beta_1 \ln\left(\frac{w_1}{w_2}\right)_{it} + \frac{1}{2}\delta_3 \ln\left(\frac{w_1}{w_2}\right)_{it} \ln\left(\frac{w_1}{w_2}\right)_{it} \\ &+ \delta_4 \ln y_{it} \ln\left(\frac{w_1}{w_2}\right)_{it} + \delta_5 t + \delta_6 t^2 + \delta_7 t \ln y_{it} + \varepsilon_{it}, \end{aligned} \tag{6}$$

where C represents the bank's total cost, y_{it} is total assets, and w_1 and w_2 are the prices of funds (interest expenses to total deposits ratio) and capital (non-interest expenses to fixed assets ratio), respectively. Due to restrictions in the availability of data on personnel expenses, we proceed as in Hasan and Marton (2003) and consider non-interest expenses as a proxy of labor expenses. Therefore, the price of capital should be interpreted as the price of both physical and human capital[4]. Normalizing the dependent variable and one input price (w_1) by another input price (w_2) ensures linear homogeneity. Then, the marginal cost is equal to $mc_{it} = \frac{\partial(C_{it}/w_2)}{\partial y_{it}} = \left(\frac{C_{it}/w_2}{y_{it}}\right)\frac{\partial ln(C_{it}/w_2)}{\partial ln\, y_{it}}$.

The Lerner index for each country and triennium is the assets weighted average for all banks operating in that particular country and period.

[4]The implicit assumption in this case is that the slopes for both physical and human capital are the same.