

Disclosure Choice when Market-Wide Externalities Matter: Evidence from IFRS Adoption by Central Banks

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Abstract: Central bank disclosures support effective monetary policy by managing market expectations, but can also create negative externalities in the form of front-running, speculative attacks, and bank runs. The existence of significant market-wide externalities requires central banks to internalize welfare implications of their disclosure choices. Using International Financial Reporting Standards (IFRS) adoption and observable deviations from IFRS as proxies for disclosure choice, we find that central banks are more likely to adopt IFRS to meet increased market demand for credible signaling of central bank policy. However, IFRS adoption is less likely in financially developed economies where the release of proprietary information may trigger unintended market-wide consequences (e.g., front-running). Moreover, because greater financial constraints compromise central bank credibility and the effectiveness of central bank policy, the likelihood of IFRS adoption and the reliance on fair value measurements decreases when central banks are financial constrained (proxied by low capital and high dividend requirements). Finally, we document that central banks in financially developed countries (facing high dividend requirements) choose to deviate primarily from IFRS rules related to enhanced disclosures (fair value reporting). These findings suggest that central banks optimize disclosure to fit their institutional environment.

Key Terms: Central banks, IFRS, accounting choice, disclosure externalities

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1. Introduction

Firm disclosures can impose market-wide externalities with implications for social welfare. For example, disclosures of one firm help to evaluate or reduce agency conflicts in other firms, creating positive externalities (e.g., Admati and Pfleiderer, 2000, Lambert et al., 2007). However, recent empirical studies also provide evidence of negative externalities, showing that individual firms' accounting restatements or misreporting can adversely affect other firms' share price or even real investment decisions (e.g., Sidak, 2003, Xu et al., 2006, Gleason et al., 2008, Beatty et al., 2013). Despite the existence of externalities, there is a lack of evidence on the feedback effects of social benefits and costs on disclosure choice. This paper addresses this gap by investigating how social benefits and costs shape central bank disclosures. Specifically, we examine the determinants of both central banks' decision to adopt International Financial Reporting Standards (IFRS) and their observable deviations from IFRS requirements.

A major impediment to investigating the impact of market-wide externalities on disclosure choice is that individual commercial firms primarily trade-off private benefits and costs, not the externalities of their disclosure decisions (Leftwich, 1980, Fishman and Hagerty, 1989, Admati and Pfleiderer, 2000, Bushee and Leuz, 2005, Lambert et al., 2007, Beyer et al., 2010, Kothari et al., 2010, Leuz and Wysocki, 2016). In contrast, central banks implement policies in order to maximize social welfare (Archer and Moser-Boehm, 2013). Their disclosures affect financial markets and the quality of these disclosures lends credibility to central bank actions and affects central bank policy outcomes (Cosimano and Huyck, 1993, Chortareas et al., 2002, Eijffinger and Hoeberichts, 2002, Crowe and Meade, 2008). For example, central

bank disclosures help form market expectations about future central bank behaviour, which in turn determine intermediate and long term interest rates and the effectiveness of monetary policy (Blinder, 2000, Dincer and Eichengreen, 2013). Given the market-wide externalities of their disclosures, central banks are an opportune setting to examine the feedback effects of social benefits and costs on disclosure choice.

While central banks use several disclosure channels,¹ we focus on financial statement disclosures for several reasons. First, focusing on central bank financial statements allows us to draw some parallels with commercial firm disclosures and allows us to use accounting literature to motivate and develop our predictions. Second, financial statement information is used in the political process, and is the primary tool for central bank accountability (Sullivan 2005). This allows us to study comprehensively the trade-off between social benefits and social costs of disclosures.

Third, unlike other disclosure channels, financial statements provide a quantitative and comprehensive depiction of central bank actions that follow a certain organizing framework. For example, central bank financial statements report on central bank assets and liabilities, and thus quantify the scale and the nature of central bank open market operations, quantitative easing (QE) programs, and measures to support the national currency or the banking sector. Asset valuations and footnote disclosures reveal the central bank's assessment of underlying asset values and future risks.²

¹ For example, central banks communicate with financial markets and the general public through press conferences, announcements of rate decisions, the disclosure of economic statistics, etc.

² Anecdotal evidence illustrates the possible uses of information reported in central bank financial statements. For example, Christian Noyer, Governor of the Bank of France and Chairman of BIS, notes: "In any event, increasing the size of the central bank's balance sheet, via large scale asset purchases, sends very important signals... it may prove an effective tool to communicate the monetary authority's determination" (Noyer, 2015). Similar, Andreas Ittner, Vice Governor, Austrian National Bank suggests that "public trust in the national currency

Forth, the verification of financial statements by auditors helps to confirm and credibly convey otherwise unverifiable information communicated through other disclosure channels (e.g., Stocken, 2000, Ball et al., 2012). However, financial statements need to be of high quality to represent a credible commitment to increased transparency (Stocken, 2000). We argue that the IFRS accounting framework satisfies this condition, because it requires comprehensive disclosure and extended use of fair values, limits discretionary accounting options and the use of off balance sheet items (relative to other national accounting frameworks) (e.g., Barth et al., 2008, Bischof, 2009). While the decision to adopt IFRS is voluntary, the increased disclosure, recognition and measurement rules become mandatory once adopted (e.g., Leuz and Verrecchia, 2000). Combined with the international recognition of IFRS, these qualities help central banks to commit to increased transparency.

We posit that, due to externalities on market participants, the “private” benefits and costs of central bank disclosures and their social benefits and costs are interrelated. This link between “private” and social benefits and costs of disclosure allows us to apply disclosure theories from the commercial firm context and investigate how determinants proposed by the theoretical literature explain disclosure choices of central banks. Specifically, we rely on signaling, proprietary cost and political cost theories to investigate central banks’ decisions to opt for more transparent financial statement disclosures.

was the starting point for the need to publish financial statements of the Austrian central bank... to prove the coverage of the national currency by adequate assets like gold holdings and foreign currency holdings.” (Ittner, 2016). Analysing the Fed’s choice to record accumulated losses as a liability rather than capital, Bank of America Merrill Lynch analysts note: “These kinds of moves do not promote confidence in the Fed, but rather cause concern within the markets. We will not make too much of a fuss over this accounting change, but the overall theme of reduced government credibility is strengthened by it. ... Fed’s accounting changes present a further challenge to government credibility, which in turn could contribute to underperformance of the long end of the Treasury curve.” (Financial Times, 21 January 2011).

Enhanced financial statement disclosures can help central banks to signal credibly their policy stance to market participants, influence their expectations, and therefore affect asset prices, consumption decisions and investment decisions (Woodford, 2005, Sellon Jr, 2008, Dincer and Eichengreen, 2010). We argue that a greater involvement of central banks in their local economies—as reflected in their balance sheet growth and the share of total assets attributable to securities held for policy purposes—increase the demand for more transparent financial statement information. Furthermore, in economies relying more on foreign direct investment, central banks are more likely to address information disadvantages of foreign investors with more transparent disclosures.

However, the disclosure of proprietary information may lead to unintended market consequences by distorting market participants' investment decisions. Market participants may exploit the release of proprietary information to front-run central banks or engage in speculative attacks (Goodfriend, 1986, Sullivan, 2005). Furthermore, the extensive disclosures of troubled assets, provisions for future risks and asset write-offs can damage market confidence in the state of the economy and even cause bank runs (Goodfriend, 1986, Archer and Moser-Boehm, 2013, Bholat and Darbyshire, 2016). We posit that proprietary costs of transparent disclosures are higher in financially developed economies, where sophisticated intermediaries (e.g., analysts, banks) and investors have the ability to exploit and benefit from central banks' proprietary disclosures.

Furthermore, more transparent recognition and measurement choices affect the level and composition of central bank capital and earnings, i.e., central banks' financial strength. Political costs arise because of distribution arrangements requiring central banks to distribute

most of their profits to the government. More extensive use of fair value measurement increases the likelihood that central banks distribute large amounts of unrealized gains that reverse in the future leading to capital shortfalls. Moreover, fair value accounting increases the likelihood of unrealized losses resulting from socially beneficial actions.³ While central banks cannot go bankrupt, they may require recapitalization by the government compromising their independence. In addition, market participants may interpret central bank losses or negative capital as signals of a loss of policy effectiveness. Under such circumstances, central banks might sacrifice monetary policy objectives for improving financial strength, which in turn diminishes their credibility (Archer and Moser-Boehm, 2013, Schwarz et al., 2014). Therefore, we posit that political costs of higher financial statement transparency will be higher for central banks with less equity capital and higher dividend requirements.

To examine how central banks trade-off the benefits and costs of transparent financial statement disclosures, we use their decision to follow IFRS. We also exploit the fact that unlike commercial firms, central banks can choose to deviate from particular provisions of IFRS. Since we can observe central banks' choices, this setting helps us to examine the trade-offs of full compliance with IFRS.

We use data from 145 central banks over the period 1995-2014. We find that the use of IFRS has substantially increased over time (18.27% in 2000 and 59.69% in 2014), but central banks frequently deviate from certain IFRS requirements and deviations do not substantially decrease over time (47.37% and 32.47% deviated from IFRS in the year 2000 and 2014,

³ For example, a central bank that hits its inflation target and achieves its policy goals may see its currency appreciate accordingly. However, this may result in exchange rate losses for a central bank with large foreign exchange reserves (Bholat and Darbyshire, 2016).

respectively). This descriptive evidence suggests that there is a demand for more transparent financial reporting in the central bank setting, but central banks choose to deviate from certain requirements to decrease the costs of full compliance with IFRS.

We use a logit model to examine determinants of central bank accounting framework choice. We show that IFRS adoption is more likely when the demand for credible communication of central bank policy is higher due to both its greater involvement in the domestic economy (larger balance sheet growth and larger proportion of securities holdings) and the importance of foreign investors for the economy. However, we show that IFRS adoption is less likely for central banks bearing higher proprietary costs and operating in countries with greater financial development (i.e., larger banking sector, more liquid stock market and more analysts). Finally, we find that central banks with higher political costs of lower capital and high dividend payouts are less likely to adopt IFRS. These results indicate that central banks internalize social benefits and costs of increased transparency under IFRS.

To complement our main tests, we examine the extent of commitment to full IFRS compliance. First, we re-run our main tests excluding central banks that do not fully comply with IFRS and obtain similar results for this sample, indicating that our main results are not driven by central banks that do not fully comply with IFRS. Second, we use a poisson and a logit model to examine the degree of compliance with IFRS to better understand, how the costs of full IFRS compliance affect central bank' disclosure choice. Consistent with the proprietary cost hypothesis, we find that central banks from financially developed countries are more likely to deviate from IFRS rules that require enhanced disclosure of the central bank financial instruments and the nature of their operations. Consistent with the presence of

political costs, financially constrained central banks are more likely to deviate from IFRS rules that require fair value measurement and reporting of revaluation adjustments in income. However, compliance with IFRS increases over time, consistent with the increase in net benefits of full compliance during our sample period or with the fact that central banks may be better able to align IFRS and their local institutional configuration with the passage of time. These results indicate that central banks internalize social costs of increased transparency in their decision on the level of commitment to IFRS.

Being the first study to analyze central bank communication through financial statements, our contribution is threefold. First, we contribute to the literature by examining whether and how reporting entities internalize social benefits and costs of their disclosures—a question that is difficult to address using commercial firms (Leftwich, 1980, Fishman and Hagerty, 1989, Admati and Pfleiderer, 2000, Bushee and Leuz, 2005, Lambert et al., 2007, Beyer et al., 2010, Kothari et al., 2010, Leuz and Wysocki, 2016). Using the central bank setting, we show how important economic agents trade-off net disclosure benefits and political costs of increased transparency when these benefits and costs have market-wide externalities with social welfare implications. Consistent with disclosure studies in the commercial firm context, we find evidence that signaling benefits and proprietary costs also explain the disclosure choices of central banks (for review, see Healy and Palepu, 2001, Leuz and Wysocki, 2016).

Second, we contribute to the IFRS literature by exploring the reasons for why central banks choose to deviate from the IFRS framework. Prior literature attributes lack of changes in financial reporting practice after the introduction of IFRS to label adoptions (e.g., Daske et al., 2013). However, central banks, much like firms, operate in different economic and

institutional environments that influence the (in)aptitude of different accounting methods. Exploiting the ability of central banks to deviate from IFRS provisions, we provide evidence on how economic costs of different accounting methods are influenced by the institutional environment. Our findings suggest that central banks adapt their accounting frameworks to fit their local institutional configuration (e.g., Ball et al., 2000, Ball et al., 2003, Hope et al., 2006, Ramanna and Sletten, 2014). Furthermore, our findings are consistent with recent studies questioning the compatibility of fair value accounting and local institutions (e.g., Ball, 2006, Christensen and Nikolaev, 2013, Goncharov and Triest, 2014, Ball et al., 2015)

Third, we respond to the call for new insights into how accounting information is used in non-firm settings (Ryan et al., 2007, Leuz and Wysocki, 2016), and analyze reporting and disclosure choices of an important, yet previously overlooked economic actor. Literature in monetary economics provides the theoretical foundations for central bank communication and discusses transparency in the context of policy formulation (Barro, 1976, Canzoneri, 1985, Gould and Verrecchia, 1985, Barro, 1986, Cukierman and Meltzer, 1986, Dotsey, 1987, Tarkka and Mayes, 1999, Geraats, 2001). However, only a few empirical studies exist on the determinants and the nature of central bank communication (Crowe and Meade, 2008, Dincer and Eichengreen, 2010). By explaining how central banks trade off the benefits and costs of their financial statement disclosure choices, our study complements this literature and adds to the policy debate on why central bank accounting matters.⁴

The paper proceeds as follows. Section 2 discusses central bank financial reporting and

⁴ See various studies by the International Monetary Fund (IMF) (e.g., Stella, 2005), Bank of International Settlements (BIS) (e.g., Archer and Moser-Boehm, 2013), and European Central Bank (e.g., Schwarz et al., 2014).

accounting framework choice. Section 3 develops hypotheses. Section 4 reports the empirical results, and section 5 concludes.

2. Central bank financial reporting

Central banks are public policy institutions and as such pursue different objectives than commercial banks. They aim to maximize social welfare, not profits (Archer and Moser-Boehm, 2013). In most countries, the central bank is the monetary authority with the primary policy goal of achieving price and financial stability (Bank For International Settlements, 2009). This goal can be achieved through open market operations, changing bank reserve requirements, lending to banks and committing to a target inflation rate (Moreno, 2010). A distinctive feature of central banks is that they are independent agencies, which have considerable freedoms in the formulation and implementation of monetary policy (Cukierman et al., 1992, Eijffinger and De Haan, 1996). This independence ensures that central banks utilize their resources to serve policy goals rather than short-run political interest (Buiter, 1999, Crowe and Meade, 2007).

All central banks in our sample publish their financial statements. Because of central bank independence, central bank financial statements are not consolidated with those of the central government and frequently apply accounting frameworks that are used by commercial entities. Thus, a good starting point for describing the financial reporting practices of central banks are financial statements filed by commercial banks. However, there are important differences, which we discuss next.

Financial statements of central banks usually consist of a balance sheet, income statement

and footnote disclosures. The balance sheet is arguably the primary report on central banks' activities since achieving policy goals cannot be isolated from the utilization of resources owned by central banks (Finnegan et al., 2012, Bholat and Darbyshire, 2016). Because central banks are the monetary authority in their jurisdictions and have the role of issuing currency, banknotes in circulation are their major liability. In addition, commercial bank reserves account for a major part of liabilities and are used by central banks to influence commercial banks' activities. Central banks use proceeds from issuing currency and reserves to invest in a portfolio of financial assets. For example, central banks hold government and commercial bonds to implement monetary policy and to support the banking sector. Furthermore, central banks frequently hold gold and foreign currency and use those instruments to pursue a certain exchange rate regime.

The difference between central bank assets and liabilities is central bank equity. Central banks cannot go bankrupt and there are numerous examples of central banks operating with negative equity. However, low or negative equity may indicate that the central bank requires a recapitalization by the government to continue its operations.

The central bank income statement records interest revenues and expenses. Other results of central bank operations include revaluation adjustments for financial assets, impairments and provisions for future losses, including highly discretionary general purpose ("rainy day") provisions. The resulting net income is used to determine the central bank dividends to the government. The dividend distribution rules substantially differ across countries (Archer and Moser-Boehm, 2013). While some countries require the central bank to distribute most of its net income and do not permit the central bank to build a substantial buffer against future losses,

other countries allow central banks to build buffers to cover past and future losses. For example, recently the Fed changed its accounting rules and will report its losses as negative interest on its balance sheet and credit dividends to this account until it is set to zero (*Financial Times*, 20 January 2011).

Accounting frameworks of central banks vary significantly around the world.⁵ These differences are likely to reflect variations in the overall institutional configuration of the economies central banks operate in. Central banks have the authority to choose their own accounting framework. Three types of accounting frameworks are commonly adopted by central banks. First, central banks adopt IFRS in full or with some deviations. For example, the Bank of Canada adopts IFRS with no exemptions. The Bank of England follows IFRS rather than UK Generally Accepted Accounting Principles (GAAP), but deviates from required disclosures of major income statement components, contingent liabilities, and information on credit risk and related parties. The Reserve Bank of South Africa chooses to deviate from IFRS and excludes net realised and unrealised gains from gold and foreign exchange assets and liabilities from the income statement.

Second, central banks use local GAAP. For example, the Swiss National Bank applies the Swiss GAAP FER guidelines instead of the IFRS or the US GAAP requested by the Swiss Stock Exchange. Third, some central banks develop their own unique accounting framework. The Fed chooses a special accounting framework created by the board of governors. Central banks in the Eurozone adopt the European Central Bank Accounting Guidelines. Interestingly,

⁵ For a detailed description and comparison of central bank financial reporting practices, see Schickner (2009) and Finnegan et al. (2012).

both central bank-specific accounting frameworks favor amortized cost over fair value accounting for financial assets. For example, the Fed's 2014 combined financial statements state that "amortized cost, rather than the fair value presentation, more appropriately reflects the financial position associated with the Reserve Banks' securities holdings given the System's unique responsibility to conduct monetary policy" (p. 8). In later sections, we label domestic GAAP and unique accounting framework as local GAAP.

The use of IFRS has gained in popularity over time. Figure 1 shows the proportion of central banks using IFRS relative to all central banks in our sample. The use of IFRS steadily increased over time and 60% of central banks use IFRS in 2014. Interestingly, from the beginning of the 2000s the IFRS adoption rate and the growth in central banks' balance sheet size show a very similar, almost synchronized, pattern. This descriptive evidence suggests that the increased adoption of IFRS might be (partly) driven by the greater involvement of central banks in the economy. We investigate this conjecture formally in our multivariate tests. However, Figure 2 shows that many central banks choose to deviate from some IFRS requirements and do not fully comply with IFRS. In 2014, 32% of IFRS central banks deviated from at least one IFRS requirement. The accounting framework choice is likely determined by the (social) benefits and costs in a specific institutional environment, which we discuss next.

[Insert Figure 1 and Figure 2]

3. Hypothesis development

3.1 Theoretical underpinnings

The voluntary disclosure and financial reporting literature provide three prominent

explanations for firms' disclosure choices. First, signaling through increased information disclosure helps to reduce information asymmetries between firms and capital providers (shareholders or debtholders), and as a result increases market liquidity (e.g., Healy et al., 1999, Leuz and Verrecchia, 2000, Heflin et al., 2005) and reduces the cost of capital (e.g., Lambert et al., 2007). Second, enhanced information disclosure may lead to proprietary costs. By disclosing proprietary information to competitors, firms may lose their competitive position (e.g., Verrecchia, 1983, Darrough and Stoughton, 1990). Third, since financial statements are used in the political process (regulation, taxation etc.), firms need to consider potential political costs of their disclosure decisions (Watts and Zimmerman, 1986). For example, while fair value accounting can improve financial reporting transparency and facilitate the valuation of firms, it may not be suitable for the use in regulation (e.g., capital maintenance and dividend regulations, taxation). Increased volatility of earnings and capital through the recognition of unrealized gains and losses under fair value accounting reduce the usefulness of financial statement information for purposes other than firm valuation (e.g., Ball et al., 2015).

The theory suggests that firms must trade-off the signaling benefits of enhanced disclosure against any proprietary and political costs of enhanced disclosure. However, firms generally prioritize private benefits and costs over social welfare implications of their disclosures. Therefore, firms are unlikely to internalize all market-wide benefits and costs and may not provide the socially optimal level of disclosure (e.g., Leuz and Wysocki, 2016).

In this paper, we argue that central banks provide an ideal setting to explore the feedback effects of social benefits and costs on disclosure choice. Central banks are government agencies that pursue social welfare. Furthermore, their disclosures influence market

participants' expectations and behavior, creating market-wide externalities with social welfare implications. Because of externalities on market participants, the "private" benefits and costs of central bank disclosure and their social benefits and costs are interrelated. Therefore, we argue that signaling, proprietary costs and political costs theories can be used to examine the feedback effects of net social benefits on disclosure choices.

We focus on IFRS adoption as our primary measure of central banks' disclosure choice. As mentioned earlier, IFRS require comprehensive disclosure (e.g., Ashbaugh and Pincus, 2001, Bischof, 2009, Chen et al., 2012) and extended use of fair value accounting (e.g., Ball, 2006, Ball et al., 2015), limit discretionary accounting options and the omission of off-balance sheet items (relative to other national accounting frameworks) (e.g., Barth et al., 2008). All these characteristics can improve financial reporting transparency. Thus, using prior theories to explain central banks' decisions to adopt IFRS, we can explore how central banks internalize social benefits and costs of increased transparency.

3.2 Information signaling

Asset prices, investments and consumption are influenced by market participants' expectations about the path of future interest rates. Transparent disclosures help form market expectations about future central bank behaviour, and as a result determine intermediate and long term interest rates. A main concern for central bankers is to maintain inflationary expectations and their variability at low levels (Cukierman, 2009). In the long run, a credible commitment to price stability is achieved mainly by actually delivering price stability. However, transparent communication helps central banks to enhance the credibility of central banks' commitments (Blinder, 2000, Dincer and Eichengreen, 2013), which in turn improves

the effectiveness of monetary policy. Consistent with these theoretical arguments, empirical studies in the macroeconomic literature indicate that central banks with higher willingness to communicate with outside parties tend to have better abilities to conduct monetary policy (Chortareas et al., 2002, Crowe and Meade, 2008, Dincer and Eichengreen, 2010).

QE and unconventional policy interventions that aim at stabilizing financial systems have not only increased central banks' balance sheets, but also exposed them to significant (new) financial risks (e.g., credit risk) (Archer and Moser-Boehm, 2013). The greater risk exposure of central banks generates increased demand for transparent financial statement information. Specifically, we posit that the benefits of IFRS financial statements are greater for central banks that are more involved in their local economy as reflected in their balance sheet growth (relative to Gross Domestic Product, GDP) and in the composition of their assets.

The size and the composition of central banks' balance sheets are highly connected to central banks' policies (Rule, 2015, Bholat and Darbyshire, 2016). Anecdotal evidence of market participants' reaction to central banks' balance sheet disclosures suggests that financial reporting information plays an important role in understanding central banks' monetary policy stances. For example, increases (decreases) in the balance sheet size through asset purchase programs are a clear signal of an expansionary (tightening) monetary policy stance.⁶ In addition, the extended disclosures required by IFRS provide information on the time dimension of monetary policy instruments including the maturity of liquidity provision activities, residual maturity of assets purchased and duration of certain operations.

In addition to domestic market participants, IFRS can help central banks in open

⁶ Noyer, C., "The size of Central Bank balance sheet - how relevant (important) is it?", speech at GIS/Bank of France annual seminar, 23 March 2015.

economies to reduce information asymmetries with foreign market participants. Specifically, one major challenge faced by an open economy is that foreign investors are at an informational disadvantage compared with local investors (e.g., Hau, 2001, Dvořák, 2005). International investors withhold investments if they cannot assess target countries' financial conditions. To address this issue, central banks in an open economy need to cater international investors' information needs through transparent disclosures. As a globally recognized body of standards, IFRS is expected to lower transaction costs associated with foreign users of financial statements. Consistent with this argument, Ramanna and Sletten (2014) find that countries' decision to introduce IFRS is positively associated with the amount of their trading with countries using IFRS. This finding suggests that central banks in countries with more foreign direct investment likely benefit from IFRS adoption, since it represents a commitment to a credible, transparent and globally accepted form of communication. This leads to our first hypothesis:

H1: The likelihood of IFRS adoption by central banks is positively associated with central banks' involvement in their local economies and with foreign investors.

3.3 Proprietary costs

More transparent financial reporting under IFRS also bears costs, because it may compromise central banks' ability to achieve policy goals. First, through their access to richer resources, central banks hold private information not known to market participants (Romer and Romer, 2000, Peek et al., 2003), and use this information to formulate monetary policy and influence macroeconomic variables (Chortareas et al., 2002). However, the disclosure of their private information enables market participants to more easily infer central banks' future

movements and jeopardize their strategic advantage in conducting monetary policy. For example, in order to adjust interest rate and liquidity, central banks may need to make transactions with market participants.

If market participants infer central banks' future actions, they could mimic central banks' trading behaviors on securities in order to exploit profits or minimize losses. Central banks, in turn, will incur higher costs when they buy or sell securities (Goodfriend, 1986).⁷ Alternatively, market participants may infer the wrong signal from financial reporting disclosures. For example, an analyst inferred from the Fed's disclosures that "The Federal Reserve's pension fund allocation appears to reflect the Fed's caution about the reflation trade: it seems to underweight assets." However, there are no reasons to believe these changes reflect the considered opinion of the Fed's staff economists about which asset will outperform (See article "The Federal Reserve's pension fund isn't trying to tell you anything" in *Financial Times*, 30 March 2017).

Second, from the disclosure of foreign exchange reserve information, market participants may more easily infer central banks' ability to pursue a certain type of exchange rate policy, which increases the risk of attracting speculative attacks (Sullivan, 2005).

Third, the disclosure of central banks' proprietary information may affect market confidence. Specifically, disclosing information about liquidity providing activities or impairments might signal weakness of financial institutions, leading to a run on the banks,

⁷ For example, a Fed' Board of Governor member Robert C. Holland notes: "That participants in the market for U.S. Government securities will use such advance information for speculative purposes is as certain as is the continuing desire for profits by people who invest their money in stocks and bonds.. The only persons benefitting from such speculation induced movements would be the speculators themselves – the public would be harmed through possible frustration of the [Fed's] efforts to achieve certain monetary policy objectives" (Goodfriend, 1986), p. 71).

withdrawal of credit, and damage to market confidence (e.g., Sullivan, 2005, Bank of England, 2012, Bank For International Settlements, 2017).⁸

The previous arguments suggest that enhanced information and risk disclosures under IFRS can generate proprietary costs with market-wide consequences. The impact of proprietary costs is likely to be more profound in countries with greater financial development. In financially developed economies, professional intermediaries such as analysts and investors are more likely to predict central banks' future movements and their ability to pursue a certain policy. Furthermore, liquid capital markets allow market participants to spend less to adjust their investment decisions (Bhide, 1993, Levine and Zervos, 1998). Finally, the worry of runs on banks might be larger for countries with a larger banking industry. Taken together, the previous arguments lead to our second hypothesis:

H2: Central banks operating in countries with greater financial development are less likely to adopt IFRS.

3.4 Political costs

The credibility of central banks and the effectiveness of their policies critically depend on their financial strength (Stella, 2005, Archer and Moser-Boehm, 2013). Specifically, a financially constrained central bank might seek recapitalization from the government, exposing itself to political attention and pressure that can have adverse effects on central bank policies. For example, upon receiving a capital injection, a central bank may increase interest rates less aggressively to control inflation, and may prefer instead measures that support full employment

⁸ For example, the unauthorized report of Northern Rock bank having been granted liquidity assistance from Bank of England on 13 September 2007 led customers to besiege bank branches to withdraw money in the following morning (Bank For International Settlements, 2017).

and increase general public support for politicians. Alternatively, to circumvent political pressure, central banks may ex ante change their policies to limit their effect on central banks' financial position (Goncharov et al., 2017). For example, "when the Swiss National Bank (SNB) abandoned its exchange-rate peg last month, causing the franc to soar by a nosebleed-inducing 20%, it seemed to be acting out of fear that it would suffer balance-sheet losses if it kept purchasing euros and other foreign currencies" (*The Guardian*, 16 February 2015).

If a central bank changes its policy because of political pressure or if market participants expect that weak financial health may lead to political pressure and a change in central bank policies, central bank policies will be less effective. As a result, central banks are likely to evaluate how certain disclosures affect market perception of their financial health, and weigh the costs of accounting policies that increase the volatility of central bank income or equity, and increase the likelihood of reporting a negative equity.

Furthermore, distribution arrangements with the government are based on financial statements giving rise to further political costs with social welfare implications. Omitting or reducing the central bank distributions to the treasury bears political costs, because politicians "rely on [central bank] transfers for a significant share of their budgets" and become accustomed to receiving dividends (Barry Eichengreen and Weder di Mauro, Project Syndicate, 12/02/2015). If accounting earnings are not sufficient to meet distribution requirements, central banks have incentives to pay dividends through reserve creation or through an increase in liabilities (e.g., money in circulation) (Hall and Reis, 2015). However, these money creation methods will lead to the expectation of future money growth (Stella, 2005), which is contradictory to central banks' goal of controlling inflation. Moreover,

distributions based on accounting earnings that include substantial unrealized fair value gains that reverse in the future could lead to erosion of central bank capital (Archer and Moser-Boehm, 2013). For example, the Bank of Israel was required to pay 9 billion to the government due to unrealized fair value gains from foreign exchange differences in 1999. However, these unrealized gains reversed in the following year resulting in the negative capital.

The extended use of fair value measurement and the inclusion of unrealized fair value gains and losses in earnings and capital under IFRS can adversely affect central banks' financial strength and increase political costs.⁹ This is one of the main reasons why the European Central Bank (ECB) refrains from applying the "pure' IFRS framework" (Schwarz et al., 2014, p. 16). We predict that political costs will be higher for central banks with low financial strength and high dividend payout requirements. This leads to our third hypothesis:

H3: Central banks with low financial strength and higher dividend payout requirements are less likely to adopt IFRS.

Central banks operate in different economic and institutional environments. Thus, their disclosure choices should reflect their unique reporting demands and institutional arrangements (Ball, 2006). As a harmonized accounting framework, IFRS may not be able to fit all central banks in different countries. Consistent with this argument, Figure 2 indicates that many IFRS adopting central banks choose to deviate from several IFRS provisions (i.e., they do not fully comply with IFRS). We predict that central banks' deviations from IFRS will be primarily driven by the proprietary and political costs of particular disclosure and recognition

⁹ The Swiss National Bank, for example, recorded roughly a 20 billion CHF loss caused by depreciation of foreign assets in its 2015 income statement. As a result, the Swiss National Bank incurred massive net losses damaging its ability to pay dividends to the government.

rules in the context of their local institutional configuration.¹⁰ Moreover, based on the discussion above, we expect that the two major areas of deviation relate to the extensive disclosure requirements and fair value recognition rules under IFRS. This leads to our final hypothesis:

H4: Central banks deviate mostly from IFRS requirements on enhanced disclosure and fair value recognition. The deviations from IFRS requirements are positively associated with the proprietary and political costs.

4. Empirical design and results

4.1 Sample selection and central bank accounting frameworks

Our sample covers the period 1995-2014 owing to the availability of detailed central bank data on Bankscope. We obtain information on central bank accounting framework, balance sheet positions, net income and central bank dividend distributions from Bankscope. We delete observations with missing information needed for the validation of the applied accounting framework, leading to a final sample of 145 central banks and 2,303 bank-year observations with data on accounting framework choice. We obtain data on country-level economic variables and institutional characteristics from the World Bank (country financial statistics), IMF (safeguard assessment program), Transparency International (government transparency and prevalence of corruption), Dincer and Eichengreen (2013) (central bank

¹⁰ For example, the Bank of England notes: “In exceptional circumstances, as part of its central banking functions, the Bank may act as ‘lender of last resort’ to financial institutions in difficulty in order to prevent a loss of confidence spreading through the financial system as a whole. In some cases, confidence can best be sustained if the Bank’s support is disclosed only when conditions giving rise to potentially systemic disturbance have improved. Accordingly, [...] financial statements may not explicitly identify the existence of such support. [...] As a result, the financial statements of the Banking Department disclose less detail of certain elements than would be required under either adopted IFRS or the Companies Act” (Bank of England Annual Report for 2014, p. 76). UK has a highly developed financial system (e.g., UK has the 4th largest banking sector in our sample).

independence), and IFRS foundation and Ramanna and Sletten (2014) (IFRS following by commercial firms).

We use Bankscope's classification of accounting frameworks as a starting point and then manually check the coding of the accounting framework based on the notes to financial statements, auditor reports and other parts of financial reports that may report on the accounting framework. While we do not have any priors that would invalidate Bankscope data on accounting standards followed by central banks, prior studies that examine IFRS adoption in the firm setting note that databanks sometimes report data with errors (e.g., Daske and Gebhardt, 2006). Our analysis of financial reports reveals three cases: (1) central banks use IFRS in full or with some deviations; (2) central banks use some form of local GAAP (i.e., domestic GAAP and unique accounting system); and (3) they fail to clearly indicate any accounting framework. We delete the third case from our dataset because we cannot validate the sources of Bankscope's accounting framework information. For most central banks, we are able to retrieve the financial statements and to validate or correct the Bankscope accounting framework data if necessary. Furthermore, for central banks applying IFRS with deviations, we recorded the nature of those deviations.

Because some central bank financial statements are missing in the early years of our sample period, we use different methods to infer the accounting framework choice in those cases. For example, if a central bank reports under IFRS since 2004 and we know from financial statements that the central bank used local GAAP in 2003 and 2002, we infer that the central bank was very likely using local GAAP before 2002, although we cannot validate this information because of the missing financial statements. Appendix 1 includes detailed

information on how we deal with missing reports.

Table 1 summarizes our sample selection and indicates the variation in the sample sizes used across different analyses. Sample size varies due to data availability across different data sources used to construct our test variables. Therefore, our subsequent analysis reports univariate tests that use the maximum number of observations available for each of the variables, while our multivariate tests confirm the results for sub-samples with non-missing data on all relevant variables.

[Insert Table 1]

4.2 Measurement of explanatory variables

We predict that central banks are more likely to use IFRS to meet increased demand for information due to the greater central bank involvement in their local economies and due to the presence of foreign investors. We measure central bank involvement in their local economies using changes in central bank total assets relative to GDP (*Balance sheet growth*) since changes in central banks' balance sheets mainly result from their operations. Additionally, we use total securities scaled by total assets (*Total securities*). Total securities from Bankscope include reverse repo and cash collateral, trading securities, derivatives, available-for-sale securities, held-to-maturities securities, at-equity investments and other investment securities. These assets include various types of financial instruments that are used to implement central bank policies (e.g., bond purchases). The rest of total assets may include cash, property, plant and equipment (PPE), retirement benefit assets, intangible assets, loans to other government agencies or other organizations, inventory and deferred tax assets, all of which are less relevant to central banks' policies. Therefore, total securities scaled by total assets captures the extent

of central bank activities that aim at affecting the economy. To proxy for information demands of foreign investors, we use foreign direct investment relative to GDP (*FDI*).

We expect that to avoid proprietary costs, central banks operating in countries with greater financial development (i.e., larger banking industry, more liquid market and more analysts) are less likely to adopt IFRS. First, following Levine and Zervos (1998) and Beck and Levine (2002) we measure the size of the banking sector using domestic credit made by banks to the private sector as a percent of GDP (*Credit by bank*). To measure market liquidity, following Levine and Zervos (1998) we use stock turnover (*Stock turnover*) defined as the ratio of the value of total shares traded to their market capitalization. Finally, we obtain the average number of analyst forecasts made in a given country and year (*Number of forecasts*) from I/B/E/S to capture the presence of sophisticated information intermediaries.

We hypothesize that, in order to avoid political costs, central banks with lower financial strength and higher dividend payout requirements are less likely to adopt IFRS. We measure central bank financial strength using total liabilities scaled by total assets (*Leverage*). As for dividend rules, we use central banks' average dividends relative to net income (i.e., dividend payout ratio) within the sample period to measure their payout requirements. We define central banks' average dividend payouts above the sample mean as central banks with high dividend payout requirements (*High dividend*).¹¹ Those central banks are required to distribute a large share of their profits to the government and are constrained in their ability to build a substantial buffer against future losses.

Since financial statements serve as a primary tool for accountability, we also control for

¹¹ The mean dividend payout ratio in Table 4 is 62%.

the demand for accountability. We expect that central banks operating in countries with better governance (proxied by lower public sector corruption) are more likely to adopt IFRS as a credible commitment to central bank accountability. We use the *Corruption* index from Transparency International to proxy for country-level governance.

Moreover, the IMF's safeguard assessment program requires troubled countries' central banks that receive IMF's financial support to report audited financial statements that follow some internationally recognized accounting standards. Therefore, we include a dummy variable *Safeguard* that indicates whether a central bank participates in the IMF safeguard assessment. We expect a positive association between *Safeguard* and IFRS adoption.

Because central banks are participants in the political process, they might need to coordinate the choice of their accounting framework with politicians. To control for the fact that in some countries central banks may not be practically able to change their accounting framework when it is optimal to do so, we use the Dincer and Eichengreen's (2013) central bank independence index, *Independence*. We predict that (any) changes in the accounting framework are less likely for central banks that lack legal independence. Alternatively, independent central banks may be better resourced and capable of developing their own accounting framework (e.g., ECB). As a result, they are less likely to follow IFRS.

We also control for the impact of IFRS adoption in the private sector on central banks' choice of the accounting framework (*IFRS in private*). Central banks may adopt the accounting framework that is commonly used in the private sector (e.g., by commercial banks) in order to maintain consistency. Therefore, we expect that central banks are more likely to adopt IFRS if domestic listed or non-listed firms are permitted or required to use IFRS.

Appendix 2 details the definition and sources of all variables used in our analyses.

4.3 Financial reporting transparency under different accounting frameworks

Literature shows that IFRS requires more disclosure than local GAAP (e.g., Bischof, 2009). Because our arguments largely rely on the assumption that IFRS increases central bank disclosure, we examine the page number of financial statements for central banks from 34 OECD countries. Table 2 shows that financial statements under IFRS have a larger number of pages than local GAAP. This difference mainly comes from the notes to the financial statements. Specifically, balance sheet notes under IFRS have, on average, 14.6 pages, while balance sheet notes under local GAAP have only 9.8 pages. These findings indicate that IFRS increase central banks' disclosures of financial information.

[Insert Table 2]

4.4 Descriptive statistics and univariate test results

Table 3 reports descriptive statistics for IFRS and local GAAP bank-year observations over the period 1995-2014. We show that the IFRS adopter relative to local GAAP reporters have significantly higher balance sheet growth, larger total securities relative to total assets and higher foreign direct investment relative to GDP. As for financial development, IFRS adopters operate in countries with smaller banking sectors, lower stock turnover and lower number of analysts. We further find that IFRS adopters have lower leverage than central banks that report under local GAAP. However, we find that a larger percentage of local GAAP central banks face high dividend payout requirements.

With respect to the control variables, local GAAP reporters operate in countries with lower

corruption levels and higher central bank independence. Independent central banks operating in countries with better governance are more likely to have the resources and capability of developing their own accounting framework. As a result, they are less likely to rely on IFRS to meet the demand for accountability. Furthermore, IFRS adopters are more likely to participate in the IMF safeguard assessment and are more likely to stem from countries that require or permit a private sector IFRS adoption.

[Insert Table 3]

4.5 Determinants of IFRS adoption

To investigate how central banks internalize the social benefits and costs of increased transparency, we model the choice to report under IFRS or local GAAP as a function of the previously defined measures of benefits and costs. Specifically, our primary test estimates the following logit model:

$$\begin{aligned}
 IFRS_{it} = & \alpha_0 + \alpha_1 \text{Balance sheet growth}_{it-1} + \alpha_2 \text{FDI}_{it-1} + \alpha_3 \text{Credit by bank}_{it-1} \\
 & + \alpha_4 \text{Stock turnover}_{it-1} + \alpha_5 \text{Number of forecasts}_{it-1} + \alpha_6 \text{Leverage}_{it-1} + \alpha_7 \text{High dividend}_{it-1} \\
 & + \alpha_8 \text{Corruption}_{it-1} + \alpha_9 \text{Independence}_{it-1} + \alpha_{10} \text{Safeguard}_{it-1} + \alpha_{11} \text{IFRS in private}_{it-1} \\
 & + \text{Year fixed effects} + \varepsilon_{it}
 \end{aligned} \tag{1}$$

where the dependent variable $IFRS_{it}$ is a dummy variable that takes the value of 1 if a central bank i applies IFRS (with or without deviations) in year t , and 0 otherwise. We measure our variables in the year prior IFRS adoption—the decision year. All variables are as previously defined with all the details on measurement and data sources reported in Appendix 2. We estimate equation (1) using logit and after controlling for year fixed effects and clustering of standard errors at the country level.

Because our test variables have vastly different number of observations, estimating

equation (1) using all variables simultaneously substantially reduces the sample size and might affect the generalizability of our results. Therefore, we include our test variables in groups to provide evidence for the largest sample possible and to see whether results materially change if we reduce the sample size while adding additional variables.

Table 4 reports results for equation (1). Column (1) shows that the coefficients on *Balance sheet growth* (2.814, z-stat=2.55) and *FDI* (4.329, z-stat=2.99) are positive and significant, suggesting that greater involvement in the local economy and larger foreign direct investment increase the likelihood of IFRS adoption by central banks. These findings are consistent with H1 and the signaling effects on central bank disclosures: To cater to the information needs of domestic and foreign market participants, central banks commit to greater financial statement transparency (e.g., Verrecchia, 2001).

Turning to financial development, the negative and significant coefficient on *Credit by bank* (-1.039, z-stat=1.72) indicates that central banks in countries with larger banking sectors are less likely to adopt IFRS, supporting H2. This finding suggests that central banks refrain from committing to increased disclosures, when those disclosures bear potential proprietary costs and can distort investment decisions. Finally, consistent with H3, the coefficient on *Leverage* is negative and significant (-4.110, z-stat=2.46), indicating that central banks with lower financial strength are less likely to adopt IFRS. This finding suggests that central banks internalize potential costs from increased fair value accounting.

As an alternative measure of central banks' involvement in the domestic economy, we use the share of monetary policy assets to total assets, *Total securities*. Redefining our test variable this way, allows us to capture assets directly affected by central bank policies, while

controlling for other factors that may affect the size of central bank's balance sheet. In columns (2) to (4), the coefficient on *Total securities* is significantly positive, providing further support for H1 (e.g., 3.087, z-stat=2.75 in column 4).

To examine the impact of proprietary and political costs further, we add more (refined) proxies. The coefficients on *Stock turnover* and *Number of forecasts* (two proxies for proprietary costs) are negative and significant (*Stock turnover*: -1.197, z-stat=2.61 in column (3); 1.312, z-stat=2.26 in column (4); *Number of forecasts*: -0.317, z-stat=-2.83 in column (4)), indicating that central banks in countries with more liquid capital markets and more analysts are less likely to use IFRS, supporting the proprietary cost hypothesis (H2). The coefficient on *High dividend* is negative and significant (-1.763, z-stat=3.15 in column (3); -2.647, z-stat=3.77 in column (4)), indicating that central banks with high dividend payout requirements are less likely to adopt IFRS. This finding further supports H3 and the argument that central banks, much like commercial firms, internalize political cost arising from the increased use of fair value accounting (e.g., Ball et al., 2015, Christensen and Nikolaev, 2013).

[Insert Table 4]

In Table 5, we re-run our main analyses from Table 4 excluding central banks that do not fully comply with IFRS. These results mitigate the concern that our main findings are driven by non-compliant IFRS adopters (potential "label" adopters), and are quite similar to our previous results. Overall, our results suggest that central banks internalize social benefits and costs of increased financial statement disclosures by trading-off information signaling, proprietary costs and political costs when they choose to follow IFRS.

[Insert Table 5]

4.6 Determinants of deviations from IFRS

To further explore how central banks internalize social costs, we further identify central banks that adopt IFRS with deviations and the specific standards they deviate from (when possible). In most cases, central banks deviate from a specific requirement, rather than a complete standard (e.g., IAS 21.28 requirement to report (un)realised gains and losses on foreign exchange differences in profit or loss). We are also able to determine whether in these cases, central banks deviate from a specific disclosure or recognition requirement.¹² The information on deviations helps us to understand the impact of social costs in two primary ways. First, we can develop stronger tests by focusing only on central banks that apply IFRS. Once central banks adopt IFRS, this choice cannot be easily reversed over time. However, as a harmonized accounting framework, IFRS may not be able to fit all central banks in different countries. In this regard, we can exploit the fact that, unlike commercial firms, central banks can choose the level of compliance with IFRS. Figure 3 shows the deviation choices made by central banks and reveals that some central banks opt in and out of certain IFRS requirements with the passage of time. Second, since we can observe the specific deviations, we can design better tests to understand the reasons for non-compliance with IFRS by linking a specific cost to certain deviations.

[Insert Figure 3]

Table 6 presents the frequency of deviations from IFRS. We are able to collect data on

¹² For example, while most of deviations from IAS 39 pertain to the recognition of fair values, the central bank of Moldova notes that “given the specificity of the bank, the categories of financial assets shown on the face of the balance sheet were presented using other names than the categories indicated by IAS 39” (Annual Report for 2010).

deviations for 354 bank-year observations (40.64% of total IFRS observations). The average number of deviations for those departing from IFRS is 2.407. Because we are particularly interested in whether central banks deviate from IFRS disclosure and fair value provisions, we categorize IFRS deviations into three groups: (1) deviations related to disclosure of the nature and the risk of central bank operations, (2) deviations related to fair value recognition, and (3) other types of deviations. For example, the Bank of England follows IFRS but in its 2010 annual report, it chooses to “disclose less detail of certain ... information on credit risk” (i.e. it deviates from some IFRS 7 requirements). South African Reserve Bank reports that “realised and unrealised valuation gains and losses on gold and foreign-denominated assets and liabilities are [...] not accounted for in profit or loss, as required by IAS 21” (Annual Report for 2010).

Figure 4 shows the number of deviations for each specific accounting standard relative to the total number of deviations. Consistent with H4, central banks mostly deviate from accounting standards requiring enhanced information disclosure (20.21% of IFRS observations deviate on average from 1.2 disclosure requirements) and fair value recognition (29.05% of IFRS observations deviate on average from 0.8 fair value recognition requirements).

[Insert Figure 4 and Table 6]

Table 7 presents the frequency of deviations by specific IFRS standards. We further group disclosure deviations into three major areas related to financial instruments, scope of business and policy performance. First, central banks’ financial instruments and related risk information are directly relevant to policy goals. Second, central banks may rely on segments, subsidiaries and other entities to implement policies. Third, central banks’ financial statements record their policy outcome. IFRS requires extensive disclosure about financial

instruments, the scope of business and the operation outcome, potentially revealing sensitive proprietary information. Consistent with the latter conjecture, in Table 7 Panel A we observe considerable deviations related to the disclosure of risks. Additionally, IFRS extends the use of fair value measurement and includes unrealized fair value gains and losses in the income statement, which may lead to higher political costs because income is used to calculate central bank dividends. Consistent with this argument, Table 7 Panel B shows that the number of deviations related to fair value recognition is also substantial.

[Insert Table 7]

To examine why central banks depart from IFRS, we compare the number of deviations across the sample partitions with high and low costs of increased transparency, using our previous proxies for proprietary and political costs. Table 8 reveals that central banks from countries with high financial development (as proxied by high *Credit by bank*, *Stock turnover*, and *Number of forecasts*) exhibit a larger percentage of deviations related to the disclosure of the financial instrument and scope of business. As for deviations related to fair value recognition, central banks with high dividend payouts show a larger percentage of deviations than central banks with low dividend payouts. These results are consistent with H4 that IFRS adopting banks' deviate from IFRS requirements that bear proprietary and political costs.

[Insert Table 8]

To investigate this further, we next use poisson and logit regression to model the choice between IFRS adoption with and without certain deviations as a function of previously defined cost measures. We use two specifications to measure deviations. First, we count the number of deviations related to disclosure of risk. Second, we use a dummy variable to examine

whether a central bank deviates from IFRS fair value recognition requirements. Accordingly, we estimate the following models:

$$\begin{aligned} \text{Num of Deviations}_{it} = & \gamma_0 + \gamma_1 \text{Credit by bank}_{it-1} + \gamma_2 \text{Stock turnover}_{it-1} + \gamma_3 \text{Number of forecasts}_{it-1} \\ & + \gamma_4 \text{Corruption}_{it-1} + \gamma_5 \text{Independence}_{it-1} + \gamma_6 \text{Safeguard}_{it-1} + \gamma_7 \text{IFRS in private}_{it-1} \\ & + \text{Year fixed effects} + \eta_{it} \end{aligned} \quad (2)$$

where $\text{Num of Deviations}_{it}$ is number of deviations related to the disclosure of risk for central bank i in year t .

$$\begin{aligned} \text{FV Deviations}_{it} = & \delta_0 + \delta_1 \text{Leverage}_{it-1} + \delta_2 \text{High dividend}_{it-1} + \delta_3 \text{Corruption}_{it-1} + \delta_4 \text{Independence}_{it-1} \\ & + \delta_5 \text{Safeguard}_{it-1} + \delta_6 \text{IFRS in private}_{it-1} + \text{Year fixed effects} + \theta_{it} \end{aligned} \quad (3)$$

where $\text{FV Deviations}_{it}$ is a dummy variable that takes value of 1 if central bank i deviates from fair value recognition requirements in year t , and 0 otherwise. All other variables are as previously defined. We estimate equation (2) and equation (3) using a poisson model and a logit model, respectively, and after controlling for year fixed effects and clustering of standard errors at the country level.

Table 9 reports the multivariate regression results. Column (1) of Table 9 presents poisson regression analysis of what determines central bank deviations from IFRS disclosure provisions. We use all cost variables from equation (1) that can be related to IFRS disclosure requirements, but we have to exclude *Number of forecasts* from the regression model because of limited available data for this variable. The coefficient on *Credit by bank* is positive and significant (3.152, z-stat=3.14), suggesting that central banks in countries with larger banking sectors have a larger number of deviations related to the disclosure of risk. This finding supports H4 and is consistent with central banks internalizing proprietary costs resulting from potential distortions of market participants' investment decisions.

Column (3) of Table 9 presents logit regression analysis of determinants of deviations

related to fair value recognition. Because fair value recognition may affect (the perception of) central bank health and its dividends, we use only political cost proxies from equation (1) (alongside the control variables). Consistent with H4, the coefficient on *High dividend* is positive and significant (2.136, z-stat=2.22), indicating that central banks with high dividend payouts are more likely to deviate from fair value recognition. This result supports the notion that central banks internalize political costs resulting from the impact of increased fair value accounting on their financial strength and ensuing market-wide consequences. These results are also consistent with the argument that IFRS cannot provide an optimum set of accounting rules meeting *all* entities' reporting needs (Ball, 2006).

To examine whether the compliance with IFRS has changed over time, we add a time trend variable in equation (2) and (3). We also interact the time trend variable with our cost proxies to understand whether the costs of full IFRS compliance change over time. Column (2) show that compliance with IFRS disclosure requirements have increased over time. Columns (3) and (6) additionally show that this increase in compliance is due to a lower weighting of costs of having a large banking system (-0.299, z-stat=1.71) and political costs of financial leverage (-1.302, z-stat=3.15). These results suggest that deviations become more costly and central banks weigh less some cost factors over time. This result is consistent with the increase in net benefits of full compliance during our sample period. It also shows that central banks may be able to better align IFRS and their local institutional configuration with the passage of time.

Overall, our analysis of deviations from IFRS highlights that central banks adapt their accounting framework to fit their local institutional configuration to achieve the socially

optimal level of disclosure.

[Insert Table 9]

5. Conclusions

This paper investigates how disclosure choice is shaped by social benefits and costs. Central bank disclosures affect the behavior of economic agents and generate market-wide externalities. Thus, in the central bank setting, “private” benefits and costs of disclosure and social benefits and costs of disclosure are interrelated. While transparent disclosure helps central banks to influence asset prices, consumption and investment through credible signaling, enhanced information disclosure can reveal central banks’ proprietary information that may distort investment decisions of market participants. Furthermore, measurement and recognition rules facilitating transparency can lead to political costs, which in turn may damage central bank’ credibility and policy effectiveness. Therefore, central banks need to internalize social benefits and costs of increased transparency by trading off information signaling, proprietary costs and political costs when making disclosure choices.

We use central banks’ decision to adopt IFRS and identifiable deviations from IFRS rules to analyse how central banks internalize social benefits and costs. Using 145 central banks over 1995-2014, we find that central banks are more likely to adopt IFRS when increased demand for transparency emanates from central banks’ involvement in the local economy and when the country receives substantial foreign investments. However, central banks are less likely to use IFRS when they operate in countries with greater financial development, have low capital and face high dividend payout requirements. Furthermore, we show that central banks

mostly deviate from IFRS rules related to enhanced disclosure of scope and risk of their operations, and IFRS rules that mandate fair value recognition in income. These findings are consistent with proprietary and political costs of increased disclosure.

Overall, our findings show that central banks internalize social benefits and costs through trading off net disclosure benefits and political costs. We believe our results have implications for standard setters. First, we provide empirical evidence that (some) entities internalize social benefits and costs when their disclosures generate market-wide externalities. Second, as a harmonized accounting framework, IFRS aim to increase comparability of financial reporting information and lower transaction costs. However, this “one size fits all” design may not fit all institutional environments. We show that a large number of central banks deviate from disclosure requirements and fair value requirements in order to reduce proprietary and political costs arising from the interaction of these disclosure and recognition methods with other elements of the local institutional configuration.

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Appendix 1: Method of dealing with missing financial reports

Case 1

	2002	2001	2000	1999	1998
Bankscope	IFRS	IFRS	IFRS	IFRS	IFRS
Report	IFRS	GAAP	GAAP	?	?

We are unable to retrieve the 1998 and 1999 financial reports. However, we are able to identify 2002 as the first IFRS year for this particular central bank. Thus, we code 1998 and 1999 as local GAAP years.

Case 2

	2002	2001	2000	1999	1998
Bankscope	GAAP	GAAP	GAAP	GAAP	GAAP
Report	IFRS	IFRS	IFRS	?	?

We cannot identify the first IFRS year and actual accounting framework revealed in available financial reports is inconsistent with Bankscope classification. We consider Bankscope data as miscoded and drop 1998 and 1999 observations.

Case 3

	2002	2001	2000	1999	1998
Bankscope	IFRS	IFRS	IFRS	IFRS	IFRS
Report	IFRS	IFRS	IFRS	?	?

We cannot identify the first IFRS year and the actual accounting framework revealed in available financial reports is consistent with Bankscope classification. However, we drop 1999 and 1998 to be cautious.

Case 4

	2002	2001	2000	1999	1998
Bankscope	GAAP	GAAP	GAAP	GAAP	GAAP
Report	GAAP	GAAP	GAAP	?	?

We cannot fully verify that this particular central bank does not use IFRS over the whole period and actual accounting framework revealed in available financial reports are consistent with Bankscope data. We assume that Bankscope coding is correct and that this particular central bank is unlikely to adopt and abandon IFRS within the missing report years. Thus, we would code 1998 and 1999 as local GAAP years.

Case 5

We fail to retrieve any financial reports and we cannot find any information related to the accounting framework from other sources. We drop all observations in this case.

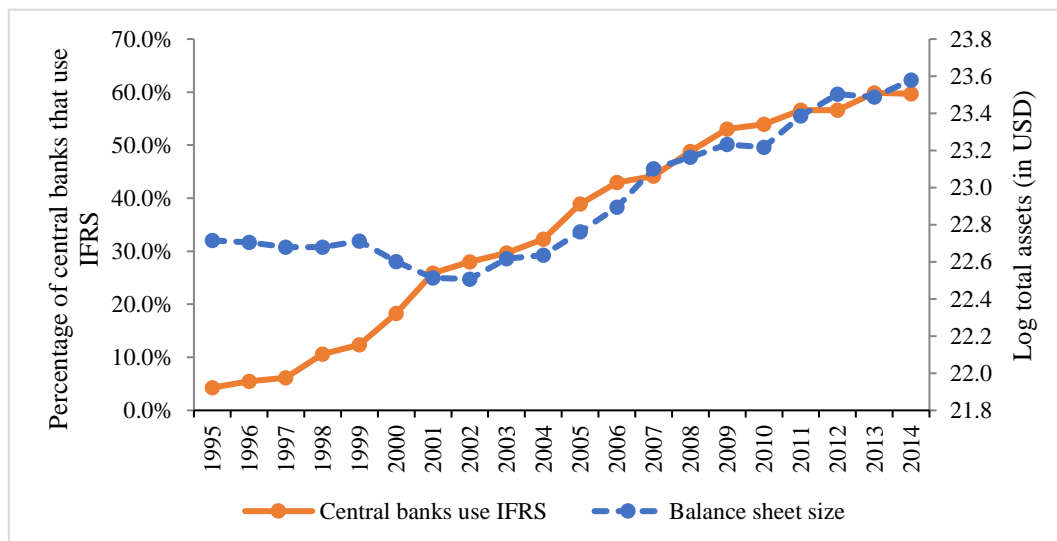
Appendix 2: Variable definitions

Variables	Definition	Data source
<u>Dependent Variables</u>		
IFRS	IFRS is a dummy variable that takes the value of 1 if central bank <i>i</i> uses IAS/IFRS <i>with or without</i> deviations, and 0 otherwise (i.e., if the central bank <i>i</i> applies local GAAP or a unique non-IFRS accounting framework) in year <i>t</i> .	Bankscope and central bank financial statement
Number of deviations	Number of deviations related to the disclosure of risk for central bank <i>i</i> in year <i>t</i> .	Central bank financial statement
FV Deviations	A dummy variable that takes value of 1 if a central bank <i>i</i> has a deviation related to fair value recognition in year <i>t</i> and 0 otherwise.	Central bank financial statement
<u>Independent Variables</u>		
Balance sheet growth	Central bank <i>i</i> 's changes in total assets (Bankscope item 11350) scaled by GDP in year <i>t</i> .	Bankscope and World bank
Total securities	Central bank <i>i</i> 's total securities (Bankscope item 11210) scaled by total assets (Bankscope item 11350) at the end of year <i>t</i> .	Bankscope
FDI	Amount of foreign direct investments scaled by GDP for country where central bank <i>i</i> operates in year <i>t</i> .	World bank
Credit by banks	Financial resources provided to the private sector by other depository corporations (deposit-taking corporations except for central banks) scaled by GDP for the country where central bank <i>i</i> operates in year <i>t</i> .	World bank
Stock turnover	Value of domestic stock traded divided by the market capitalization for a country where central bank <i>i</i> operates in year <i>t</i> . For countries without a stock market, stock turnover is recorded as 0.	World bank
Number of forecast	Average number of EPS forecasts made within one year for the country where central bank <i>i</i> operates in year <i>t</i> .	I/B/E/S

Variables	Definition	Data source
Leverage	Central bank i 's total liabilities (Bankscope item 11750) scaled by total assets (Bankscope item 11350) at the end of year t .	Bankscope
High dividend	Dummy variable that takes the value of 1 if central bank i 's average dividend paid relative to net income (Bankscope item 18170) within the sample period is above the mean of all central banks' average dividend paid relative to net income within the sample period, and 0 otherwise. The central bank must have three dividend payment records within the sample period. For central banks paying negative dividends, we set the payout ratio to 0%. If a central bank pays dividends while incurring an accounting loss or when the payout ratio exceeds 100%, payout ratio is set to 100%.	Bankscope
Corruption	Corruption perception index from Transparency International. This index measures corruption of public sector for a country where central bank i operates in year t . The index ranges from 0 to 10 for period 1995-2011 and ranges from 0 to 100 after 2011. We divided this index by 10 after 2011. Higher index indicates a country is perceived as less corrupted. The missing value is replaced by nearest non-missing value.	Transparency international
Independence	An index of central bank i 's independence based on Dincer and Eichengreen (2013) in year t . This index captures central banks independence from CEO appointment, policy formulation, objectives and limitation on lending to the government. The index ranges from 0 to 1 and higher value indicating more independent central banks. The index is available for the time period 1998-2010. We assign the value of index from 1998 (2010) for years 1995-1997 (2011-2014). All central banks in Euro zone countries have the same value.	Dincer and Eichengreen (2013)

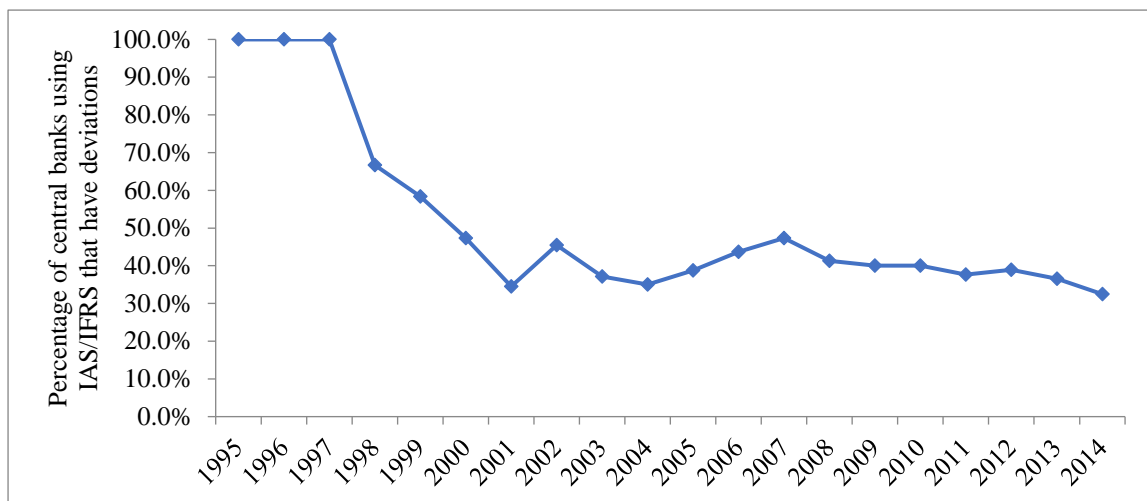
Variables	Definition	Data source
Safeguard	A dummy variable that takes the value of 1 from the first year central bank <i>i</i> participates in an IMF safeguard assessment, and 0 otherwise.	IMF
IFRS in private	A dummy variable that takes the value of 1 from the first year a country, where central bank <i>i</i> operates, permits or requires list or unlisted firms to adopt IAS/IFRS, and 0 otherwise.	IFRS Foundation and Ramanna and Sletten (2014)
Time trend	A linear time trend variable. It is equal to 1 in 1995 and equal to 20 in 2014.	N/A

Figure 1: Adoption of IFRS in central banks and balance sheet size change



This figure plots the number of bank-year observations using IFRS relative to the total number of bank-year observations and the mean of log total assets (Bankscope item 11350 expressed in USD) in each year of the sample period. The sample includes bank-year observations using IFRS and local GAAP over the period 1995-2014.

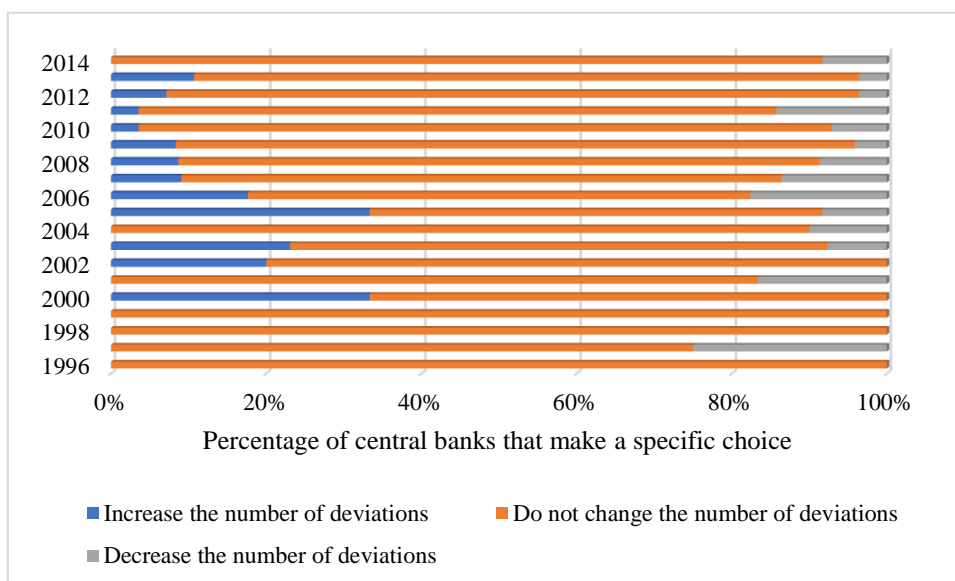
Figure 2: Adoption of IFRS with deviations in central banks



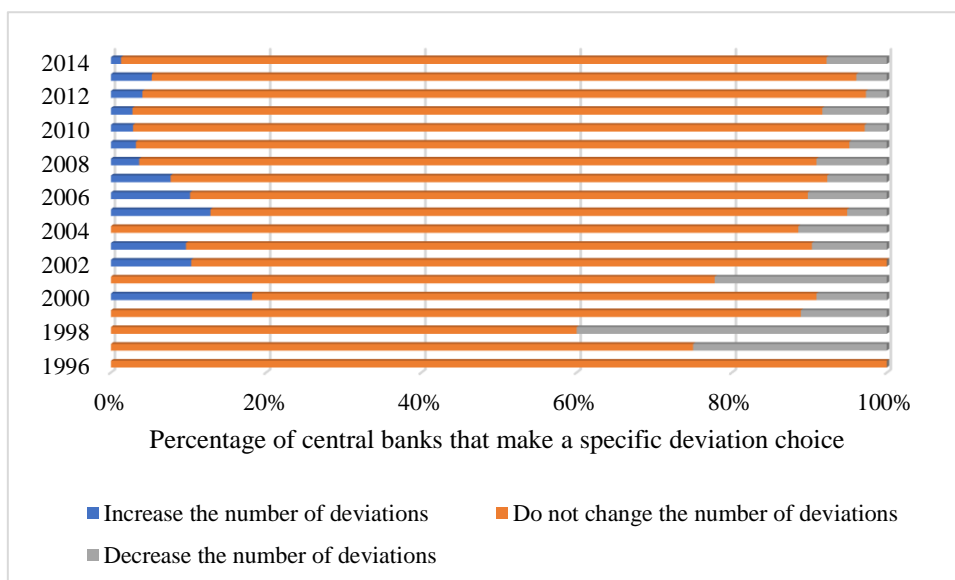
This figure plots the number of bank-year observations using IFRS with deviations relative to the total number of bank-year observations using IFRS in each year of the sample period. The sample includes bank-year observations using IFRS over the period 1995-2014.

Figure 3: Evolution of deviation choices over time

Panel A: Change in deviations over time for central banks with IFRS deviations

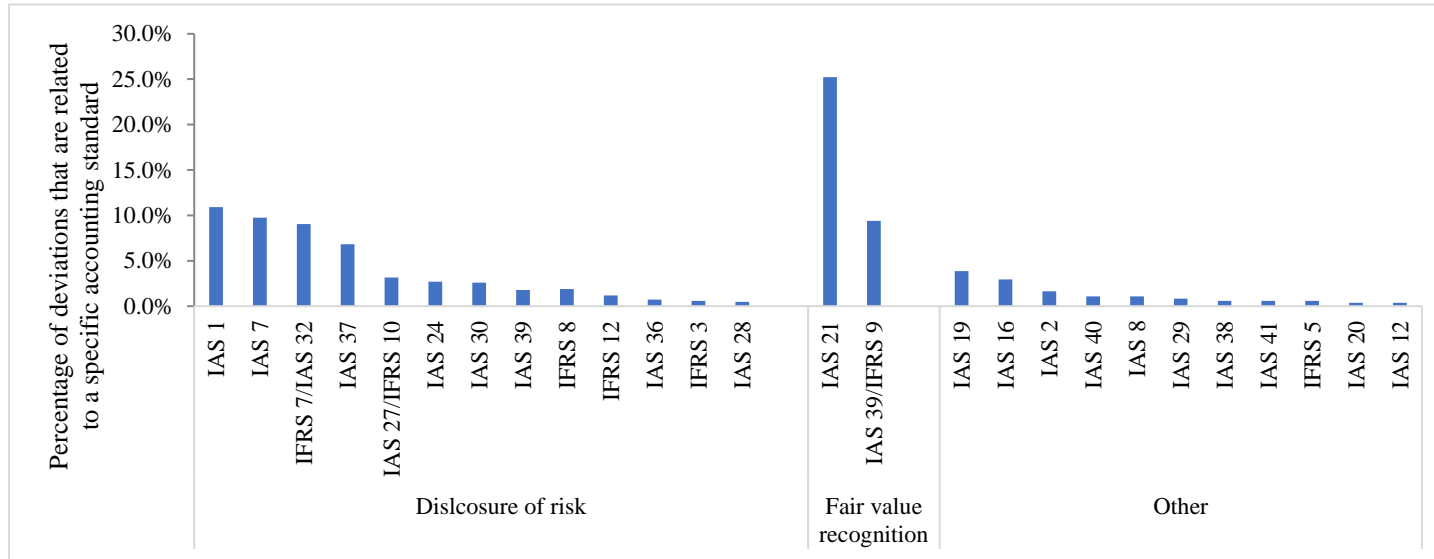


Panel B: Change in deviations over time for central banks using IFRS



This figure shows the changes in deviation choices of central banks using IFRS over time. Panel A shows the number of bank-year observations using IFRS with deviations and deviations, for which we can identify increased, unchanged and decreased number of deviations compared with the prior year relative to the total number of bank-year observations. Panel B shows the number of bank-year observations using IFRS with increased, unchanged and decreased number of deviations compared with last year relative to the total number of bank-year observations. The sample includes bank-year observations using IFRS over the period 1995-2014.

Figure 4: Accounting standards that central banks choose to deviate from



This figure shows the number of deviations for a specific accounting standard relative to the total numbers of deviations. The sample includes bank-year observations using IFRS with deviations for which we can identify deviations over the period 1995-2014.

Table 1: Sample selection

	Accounting framework		Deviation	
Initial sample	2680	2680	871	871
Remaining after deleting:				
Missing data for accounting framework	2303	2303		
Observation with deviations		1916		
Indicating deviation but missing data for deviated standards			838	838
Observation with deviation related to fair value recognition and others			558	
Observation with deviation related to disclosure of risk and others				630
Missing data for test variables	431-1601	395-1240	252	259
Table 4 sample: Full sample	431-1601			
Table 5 sample: Fully compliant IFRS adoption		395-1240		
Table 9 Column 1, 2 and 3 sample: Deviation related to disclosure of risk			252	
Table 9 Column 4, 5 and 6 sample: Deviation related to fair value recognition				259

This table presents the sample selection for the analyses of Table 4, 5 and 9. Table 4 sample includes bank-year observations using IFRS (with or without deviations) or using local GAAP; the sample period is 1995-2014. Table 5 sample includes bank-year observations using IFRS with no deviations or using local GAAP; the sample period is 1995-2014. Table 9 Column 1, 2 and 3 sample includes bank-year observations using IFRS except for bank-year observations with deviations related to fair value recognition and others, and bank-year observations that exhibit deviations but the nature of deviations cannot be identified; the sample period is 1995-2014. Table 9 Column 4, 5 and 6 sample includes bank-year observations using IFRS except for bank-year observations with deviations related to disclosure of risk and others, and bank-year observations that exhibit deviations but the nature of deviation cannot be identified; the sample period is 1995-2014.

Table 2: Comparison of financial statements' length under different accounting frameworks

Variables	IFRS			Local GAAP			IFRS vs. Local GAAP	
	N	Mean	Median	N	Mean	Median	Mean t-stat for differences	Median z-stat for differences
Financial statement	73	46.3	46.0	537	30.0	29.0	7.87	6.81
Total notes	73	33.4	35.0	537	20.3	19.0	8.17	6.89
Total balance sheet notes	73	14.6	11.5	535	9.8	9.5	4.66	3.91
Balance sheet financial instrument notes	49	5.9	5.0	227	1.8	1.0	10.24	7.38
Total income statement notes	73	3.7	2.5	509	4.5	4.0	1.82	5.04
Income statement financial instrument notes	40	1.1	1.0	210	1.0	0.5	0.67	1.72

This table reports the page numbers under IFRS and local GAAP. The sample includes bank-year observations from all OECD countries except for Latvia over the period 1995-2014. *Financial statement* is total page number of financial statements (i.e., balance sheet, comprehensive income statement, change in equity and cash flow), notes and auditor report. *Total notes* are page number of notes related to financial statements. *Total balance sheet notes* are page number of notes related to balance sheet. *Balance sheet financial instrument notes* are page number of notes related to financial instrument shown in balance sheet. *Total income statement notes* are page number of notes related to the income statement. *Income statement financial instrument notes* are page number of notes related to financial instrument shown in the comprehensive income statement. The statistical significance of the difference of means (medians) is based on the parametric *t*-test (the non-parametric Wilcoxon test). The *t*-statistics of *t*-test and the *z*-statistics of Wilcoxon test are reported in separated columns.

Table 3: Descriptive statistics for variables used in empirical analyses

	IFRS				Local GAAP				IFRS VS Local GAAP	
	N	Mean	Median	Standard deviation	N	Mean	Median	Standard deviation	t-stat for differences	z-stat for differences
<i>Test variables:</i>										
Balance sheet growth	817	0.030	0.022	0.053	1,258	0.022	0.013	0.059	2.81	4.70
Total securities	776	0.452	0.481	0.281	1,123	0.354	0.264	0.304	7.12	7.33
FDI	840	0.061	0.040	0.070	1,295	0.045	0.027	0.065	5.36	7.77
Credit by bank	820	0.401	0.309	0.331	1,269	0.613	0.501	0.446	11.70	11.10
Stock turnover	536	0.240	0.059	0.478	934	0.451	0.298	0.537	7.54	9.41
Number of forecasts	336	3.552	2.405	2.883	851	5.491	5.130	3.198	9.67	10.58
Leverage	848	0.908	0.923	0.125	1,376	0.930	0.949	0.120	4.10	5.50
High dividend	520	0.465	0.000	0.499	838	0.593	1.000	0.492	4.63	4.59
<i>Control variables:</i>										
Corruption	825	3.920	3.300	1.793	1,298	5.237	4.900	2.375	13.65	12.64
Independence	848	0.463	0.490	0.201	1,376	0.537	0.540	0.232	7.68	7.49
Safeguard	846	0.546	1.000	0.498	1,373	0.192	0.000	0.394	18.53	17.25
IFRS in private	609	0.711	1.000	0.454	1,150	0.326	0.000	0.469	16.56	15.41

This table reports descriptive statistics and univariate test results. The sample includes bank-year observations that use IFRS (with and without deviations) or local GAAP over the period 1995-2014. All variables are defined in Appendix 2. *Balance sheet growth* is changes in total assets scaled by GDP. *Total securities* is total securities scaled by total assets. *FDI* is the amount of foreign direct investments scaled by GDP. *Credit by bank* is financial resources provided to the private sector by other depository corporations (deposit-taking corporations except for central banks) scaled by GDP. *Stock turnover* is the value of domestic stock traded divided by their market capitalisation. *Number of forecasts* is the average number of EPS forecasts made in a given country and year. *Leverage* is total liabilities scaled by total assets. *High dividend* is a dummy variable that takes the value of 1, if the central bank's average dividend relative to net income within the sample period is above the sample mean, and 0 otherwise. *Corruption* is the corruption perception index from Transparency International. This index measures corruption of public sectors. Higher index indicates a country is perceived as less corrupted. *Independence* is an index of central banks independence based on Dincer and Eichengreen (2013). The index ranges from 0 to 1 and higher values indicate more independent central banks. *Safeguard* is a dummy variable that takes the value of 1 from the first year a central banks participates in the IMF safeguard assessment, and 0 otherwise. *IFRS in private* is a dummy variable that takes the value of 1 since the first year countries permit or require listed or unlisted firms to adopt IFRS, and 0 otherwise. All variables are lagged. The *t*-statistics of *t*-test and *z*-statistics of Wilcoxon test are reported in separated columns.

Table 4: Determinants of IFRS adoption

Variables	Predicted sign	(1)	(2)	(3)	(4)
<i>Test variables</i>					
Balance sheet growth	+	2.814** (2.55)			
Total securities	+		0.944* (1.86)	2.944*** (3.70)	3.087*** (2.75)
FDI	+	4.329*** (2.99)	4.852*** (3.12)	2.924** (2.16)	2.331 (0.84)
Credit by bank	-	-1.039* (-1.72)	-1.059* (-1.72)	-0.668 (-0.89)	0.236 (0.28)
Stock turnover	-			-1.197*** (-2.61)	-1.312** (-2.26)
Number of forecasts	-				-0.317*** (-2.83)
Leverage	-	-4.110** (-2.46)	-3.690* (-1.90)	-4.624** (-2.27)	-7.359** (-2.47)
High dividend	-			-1.763*** (-3.15)	-2.647*** (-3.77)
<i>Control variables</i>					
Corruption	+	-0.201* (-1.75)	-0.192* (-1.68)	-0.290** (-2.03)	-0.183 (-1.00)
Independence	+/-	-2.796*** (-2.86)	-2.650*** (-2.7)	-4.713*** (-3.98)	-6.307*** (-4.68)
Safeguard	+	0.847* (1.86)	0.997** (2.18)	2.089*** (3.57)	2.349*** (2.66)
IFRS in private	+	1.998*** (4.44)	2.138*** (4.49)	3.208*** (4.47)	3.039*** (4.13)
Constant	+/-	4.909** (2.52)	3.754* (1.67)	4.818* (1.88)	8.969*** (2.73)
Observations		1601	1457	616	431
Countries		106	105	55	41
Pseudo R-squared		0.29	0.32	0.51	0.53
Area under ROC curve		0.85	0.86	0.92	0.93
Year fixed effect		Yes	Yes	Yes	Yes

This table reports result of logit regression analyses of determinants of IFRS adoption. The sample includes bank-year observations applying IFRS (with or without deviations) or local GAAP; the sample period is 1995-2014. All variables are defined in Appendix 2. The dependent variable is a dummy variable that takes the value of 1 for central banks applying IFRS (with or without deviations), and 0 otherwise. *Balance sheet growth* is changes in total assets scaled by GDP. *Total securities* is total securities scaled by total assets. *FDI* is the amount of foreign direct investments scaled by GDP. *Credit by bank* is financial resources provided to

the private sector by other depository corporations (deposit-taking corporations except for central banks) scaled by GDP. *Stock turnover* is the value of domestic stock traded divided by their market capitalisation. *Number of forecasts* is the average number of EPS forecasts made in a given country and year. *Leverage* is total liabilities scaled by total assets. *High dividend* is a dummy variable that takes the value of 1, if the central bank's average dividend relative to net income within the sample period is above the sample mean, and 0 otherwise. *Corruption* is the corruption perception index from Transparency International. This index measures corruption of public sectors. Higher index indicates a country is perceived as less corrupted. *Independence* is an index of central banks independence based on Dincer and Eichengreen (2013). The index ranges from 0 to 1 and higher values indicate more independent central banks. *Safeguard* is a dummy variable that takes the value of 1 from the first year a central bank participates in the IMF safeguard assessment, and 0 otherwise. *IFRS in private* is a dummy variable that takes the value of 1 since the first year countries permit or require listed or unlisted firms to adopt IFRS, and 0 otherwise. All independent variables are lagged. z-statistics are based on standard errors clustered by country and reported in parentheses. ***, **, *significant at the 1%, 5% and 10% levels.

Table 5: Determinants of fully compliant IFRS adoption

Variables	Predicted sign	(1)	(2)	(3)	(4)
<i>Test variables</i>					
Balance sheet growth	+	3.551** (2.56)			
Total securities	+		1.370** (2.29)	4.125*** (4.39)	4.391*** (3.54)
FDI	+	5.480*** (3.45)	6.377*** (3.79)	5.194*** (2.63)	3.188 (0.99)
Credit by bank	-	-1.511** (-2.15)	-1.620** (-2.24)	-1.805* (-1.95)	-1.080 (-1.06)
Stock turnover	-			-1.460*** (-3.03)	-1.601*** (-2.96)
Number of forecasts	-				-0.163 (-1.48)
Leverage	-	-4.481** (-2.44)	-4.070* (-1.75)	-4.315 (-1.64)	-5.209 (-1.64)
High dividend	-			-2.575*** (-3.80)	-3.298*** (-3.41)
<i>Control variables</i>					
Corruption	+	-0.099 (-0.73)	-0.081 (-0.60)	-0.111 (-0.58)	-0.072 (-0.30)
Independence	+/-	-2.576** (-2.08)	-2.392* (-1.87)	-4.700*** (-2.80)	-5.673*** (-3.11)
Safeguard	+	0.951* (1.86)	1.155** (2.21)	2.772*** (3.85)	2.788*** (2.83)
IFRS in private	+	1.985*** (3.61)	2.165*** (3.63)	3.268*** (4.17)	2.766*** (3.19)
Constant	+/-	4.471** (2.07)	3.013 (1.08)	3.593 (1.07)	5.800 (1.44)
Observations		1240	1104	515	395
Countries		101	99	52	39
Pseudo R-squared		0.28	0.32	0.56	0.54
Area under ROC curve		0.84	0.86	0.94	0.94
Year fixed effect		Yes	Yes	Yes	Yes

This table reports the results for the logit regression analyses of the determinants of fully compliant IFRS adoption. The sample includes bank-year observations applying IFRS with no deviations or local GAAP; the sample period is 1995-2014. All variables are defined in Appendix 2. The dependent variable is a dummy variable that takes the value of 1 for central banks applying IFRS with no deviations, and 0 otherwise. *Balance sheet growth* is changes in total assets scaled by GDP. *Total securities* is total securities scaled by total assets. *FDI* is the amount of foreign direct investments scaled by GDP. *Credit by bank* is financial

resources provided to the private sector by other depository corporations (deposit taking corporations except for central banks) scaled by GDP. *Stock turnover* is the value of domestic stock traded divided by their market capitalisation. *Number of forecasts* is the average number of EPS forecasts made in a given country and year. *Leverage* is total liabilities scaled by total assets. *High dividend* is a dummy variable that takes the value of 1, if the central bank's average dividend relative to net income within the sample period is above the sample mean, and 0 otherwise. *Corruption* is the corruption perception index from Transparency International. This index measures corruption of public sectors. Higher index indicates a country is perceived as less corrupted. *Independence* is an index of central banks independence based on Dincer and Eichengreen (2013). The index ranges from 0 to 1 and higher values indicate more independent central banks. *Safeguard* is a dummy variable that takes the value of 1 from the first year a central bank participates in the IMF safeguard assessment, and 0 otherwise. *IFRS in private* is a dummy variable that takes the value of 1 since the first year countries permit or require listed or unlisted firms to adopt IFRS, and 0 otherwise. All independent variables are lagged. z-statistics are based on standard errors clustered by country and reported in parentheses. ***, **, *significant at the 1%, 5% and 10% levels.

Table 6: Frequency of deviations from IFRS**Panel A: Frequency of IFRS observations with and without deviations**

	N	%IFRS
No deviation	484	55.57%
With deviations but no disclosure of the nature of deviations	33	3.79%
With deviations and deviations can be identified	354	40.64%

Panel B: Descriptive statistics for the number of deviations

	N	Mean	Median	Standard deviation
All deviations	852	2.407	2.000	1.865
<i>Deviation groups</i>				
Disclosure of risk	439	1.240	0.000	1.679
Fair value	295	0.833	1.000	0.614
Other	118	0.333	0.000	0.794

This table reports the frequency of deviations for central banks using IFRS. The Panel A reports the number of bank-year observations using IFRS with no deviations, using IFRS with deviations but do not disclose the nature of deviations, and using IFRS with deviations and deviations can be identified. %IFRS is the percentage of the total numbers of bank-year observations using IFRS. The Panel B reports the descriptive statistics of the number of deviations for bank-year observations using IFRS with deviations and deviations can be identified.

Table 7: Frequency of deviations by specific IFRS standards**Panel A: Deviations related to disclosure of risk**

	Accounting standards	Number of deviations	%Deviation	%IFRS
Financial instrument	IFRS 7/IAS 32: Financial instrument disclosure	77	9.04%	8.84%
	IAS 39: Financial instrument disclosure	15	1.76%	1.72%
Scope of business	IAS 27/IFRS 10: Consolidation	27	3.17%	3.10%
	IAS 24: Related party disclosure	23	2.70%	2.64%
	IFRS 8: Operating segment	16	1.88%	1.84%
	IFRS 12: Interest in other entities disclosure	10	1.17%	1.15%
	IFRS 3: Business combination	5	0.59%	0.57%
	IAS 28: Investment in associates and joint ventures	4	0.47%	0.46%
Policy performance	IAS 1: Presentation of financial statement	93	10.92%	10.68%
	IAS 7: Statement of cash flow	83	9.74%	9.53%
	IAS 37: Provision and contingent liabilities	58	6.81%	6.66%
	IAS 30: Bank and similar financial institution disclosure	22	2.58%	2.53%
	IAS 36: Impairment of asset	6	0.70%	0.69%

Panel B: Deviations related to fair value recognition

	Accounting standards	Number of deviations	%Deviation	%IFRS
Fair value recognition	IAS 21: Change in foreign exchange rate	215	25.23%	24.68%
	IAS 39/IFRS 9: Financial instrument	80	9.39%	9.18%

Panel C: Deviations related to others

	Accounting standards	Number of deviations	%Deviation	%IFRS
	IAS 19: Employee benefit	33	3.87%	3.79%
	IAS 16: PPE	25	2.93%	2.87%
	IAS 2: Inventories	14	1.64%	1.61%
	IAS 40: Investment property	9	1.06%	1.03%
	IAS 8: Accounting policy, estimate and error	9	1.06%	1.03%
Other accounting standards	IAS 29: Hyperinflationary economics	7	0.82%	0.80%
	IAS 38: Intangible asset	5	0.59%	0.57%
	IAS 41: Agriculture	5	0.59%	0.57%
	IFRS 5: Non-current asset	5	0.59%	0.57%
	IAS 20: Government grant	3	0.35%	0.34%
	IAS 12: Income tax	3	0.35%	0.34%

This table reports frequency distribution of accounting standards that central banks choose to deviate. Panel A reports deviations related to the disclosure of risk. Panel B reports deviations related to fair value recognition. Panel C reports deviations other than disclosure of risk and fair value recognition. %Deviation is the number of deviations for a specific accounting standard relative to the total numbers of deviations. %IFRS is the number of bank-year observations reporting a specific deviated accounting standard relative to the total numbers of bank-year observations using IFRS.

Table 8: Deviations related to disclosure of risk and fair value recognition for high versus low proprietary and political cost partitions

Variables	Predicted sign	N	High	Low	t-stat for differences
<i>Financial instrument</i>					
Credit by bank	High>Low	529	0.079	0.070	0.38
Stock turnover	High>Low	332	0.056	0.016	1.98
Number of forecasts	High>Low	220	0.080	0.015	2.38
<i>Scope of business</i>					
Credit by bank	High>Low	529	0.050	0.000	4.12
Stock turnover	High>Low	332	0.056	0.000	3.79
Number of forecasts	High>Low	220	0.080	0.023	1.99
<i>Policy Performance</i>					
Credit by bank	High>Low	529	0.114	0.104	0.36
Stock turnover	High>Low	332	0.101	0.095	0.18
Number of forecasts	High>Low	220	0.102	0.121	0.43
<i>Fair value recognition</i>					
Leverage	High>Low	613	0.209	0.268	1.70
Dividend	High>Low	373	0.322	0.158	3.78

This table reports the number of bank-year observations having deviations related to disclosure of financial instrument, the scope of business and policy performance, and fair value recognition relative to the total numbers of bank-year observations under the high versus low proprietary and political cost partitions. The sample of deviations related to disclosure of financial instrument, the scope of business and policy performance includes bank-year observations using IFRS except for bank-year observations deviating from fair value recognition and others, and observations having deviations but do not disclose the nature of deviations; the sample period is 1995-2014. The sample of deviations related to fair value recognition includes bank-year observations using IFRS except for bank-year observations deviating from disclosure of risk and others, and bank-year observations having deviations but do not disclose the nature of deviations; the sample period is 1995-2014. All variables are defined in Appendix 2. *Credit by bank* is financial resources provided to the private sector by other depository corporations (deposit-taking corporations except for central banks) scaled by GDP. High (low) *Credit by bank* refers to bank-year observations for which credit by bank is above (below) the mean of all bank-year observations. *Stock turnover* is the value of domestic stock traded divided by their market capitalisation. High (low) *Stock turnover* refers to bank-year observations for which stock turnover is above (below) the mean of all bank-year observations. *Number of forecasts* is the average number of EPS forecasts made in a given country and year. High (low) *number of forecasts* refers to bank-year observations for which the number of forecasts is above (below) the mean of all bank-year observations. *Leverage* is total liabilities scaled by total assets. High (low) *Leverage* refers to bank-year observations for which leverage is above (below) the mean of all bank-year observations. High (low) *Dividend* is refers to bank-year observations for which average dividends relative to net income within the sample period is above (below) the sample mean. All variables are lagged. The statistical significance of the difference in

means is based on the parametric t -test. The t -statistics of t -test are reported in a separated column.

Table 9: Determinants of deviations from IFRS related to disclosure of risks and fair value recognition

Variables	Predicted sign	(1)	(2)	(3)	(4)	(5)	(6)
<i>Test variables</i>							
Credit by bank	+	3.152*** (3.14)	3.065*** (3.01)	7.442** (2.48)			
Credit by bank*Time trend	+/-			-0.299* (-1.71)			
Stock turnover	+	-0.270 (-0.54)	0.015 (0.04)	0.110 (0.05)			
Stock turnover*Time trend	+/-			0.009 (0.07)			
Leverage	+				-2.044 (-0.49)	-1.025 (-0.26)	14.406** (2.48)
Leverage*Time trend	+/-						-1.302*** (-3.15)
High dividend	+				2.136** (2.22)	1.986** (2.13)	3.698* (1.67)
High dividend *Time trend	+/-						-0.098 (-0.59)
Time trend	+/-		-0.328** (-2.56)			0.080 (1.17)	
<i>Control variables</i>							
Corruption	+/-	0.088 (0.35)	0.093 (0.34)	-0.089 (-0.37)	-0.882*** (-2.81)	-0.836*** (-2.65)	-0.921** (-2.57)
Independence	+/-	1.586 (0.41)	1.283 (0.33)	1.484 (0.39)	-7.915** (-2.28)	-6.747** (-2.11)	-10.02** (-2.39)
Safeguard	+/-	1.234 (1.01)	1.395 (1.03)	1.006 (0.81)	0.346 (0.34)	0.082 (0.09)	0.813 (0.84)
IFRS in private	+/-	1.181** (2.33)	1.516** (2.29)	1.196*** (2.67)	-0.538 (-0.52)	-0.403 (-0.44)	-0.656 (-0.63)
Constant	+/-	-23.490*** (-9.02)	-2.141 (-0.52)	-21.519*** (-6.38)	5.791 (1.21)	4.185 (0.97)	15.867** (2.24)
Observations		252	252	252	259	259	259
Countries		40	40	40	30	30	30
Pseudo R-squared		0.36	0.32	0.38	0.33	0.29	0.35
Year fixed effect		Yes	No	Yes	Yes	No	Yes

Notes: This table reports analyses of determinants of deviations related to disclosure of risks and fair value recognition. Column 1, 2 and 3 sample includes bank-year observations using IFRS except for bank-year observations deviating from fair value recognition and others, and bank-year observations having deviations but do not disclose the nature of deviations; the sample period is 1995-2014. The dependent variable under Column 1, 2, and 3 is number of deviations related to disclosure

of risk. Column 1, 2 and 3 use poisson regression. Column 4, 5 and 6 sample includes bank-year observations using IFRS except for bank-year observations deviating from disclosure of risk and others, and bank-year observations having deviations but do not disclose the nature of deviations; the sample period is 1995-2014. The dependent variable under Column 4, 5 and 6 is a dummy variable that takes the value of 1 if bank-year observation deviates from fair value recognition and 0 otherwise. Column 4, 5 and 6 use logit regression. All variables are defined in Appendix 2. *Credit by bank* is financial resources provided to the private sector by other depository corporations (deposit-taking corporations except for central banks) scaled by GDP. *Stock turnover* is the value of domestic stock traded divided by their market capitalisation. *Leverage* is total liabilities scaled by total assets. *High dividend* is a dummy variable that takes the value of 1 if one central bank's average dividend relative to net income within the sample period is above the sample mean and 0 otherwise. *Corruption* is corruption perception index from Transparency International. This index measures corruption of public sectors. Higher index indicates a country is perceived as less corrupted. *Independence* is an index of central banks independence based on Dincer and Eichengreen (2013). The index ranges from 0 to 1 and higher value indicating more independent central banks. *Safeguard* is a dummy variable that takes the value of 1 since the first year central banks finish IMF safeguard assessment and 0 otherwise. *IFRS in private* is a dummy variable that takes the value of 1 since the first year countries permit or require listed or unlisted firms to adopt IFRS and 0 otherwise. *Time trend* is a linear time trend variable. All independent variables are lagged. z-statistics are based on standard errors .