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# Regional Financial Integration in Sub-Saharan Africa – An Empirical Examination of its Effects on Financial Market Development\*

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## Abstract

This paper examines the effects of political agreements on regional financial integration (RFI) on financial market development and access to and cost of finance in Sub-Saharan Africa. Our results suggest that RFI positively affects financial development – measured very broadly as the size of the financial sector, including the liabilities of the central banks – when combined with a sufficient level of institutional quality. If institutional quality is below a threshold level, RFI apparently has negative effects on financial development. However, we can find no significant effects of RFI on the size of the private financial sector or on the efficiency of the banking sector. Regarding the effects of RFI on access to and costs of finance of enterprises in SSA, our results are mixed. We can find no significant effect of RFI on access to finance for all firms in the aggregate, but the results indicate that RFI actually impedes small firms' access to finance. Furthermore, there is a significant positive influence of foreign bank involvement on the severity of the credit constraint for small enterprises, while we don't find such an influence for large enterprises. These results provide some support for the foreign bank barrier hypothesis in the context of RFI.

*Keywords: Regional financial integration, Sub-Saharan Africa, financial development, access to finance.*

*JEL Classification: G21, F36, O16.*

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# 1. Introduction

There is a growing number of studies on financial integration in various regional integration projects in Sub-Saharan Africa (see e.g. UNECA and AU, 2008; UNECA and SADC, 2010; Lovegrove *et al.*, 2007; Bhatia, 2009; Jansen and Vennes, 2006). These contributions strongly (and sometimes exclusively) emphasise the potential merits of regional financial integration (RFI) resulting from economies of scale; stimuli for domestic financial reforms; increased competition and innovation; expanded opportunities for risk diversification; etc. These assumed benefits are predominantly based on theoretical arguments that are habitually made both in the debate on financial globalisation and RFI. The key assertion in the literature is that RFI is beneficial since it entails financial development. The empirical evidence, however, is lacking.

Against this backdrop, the aim of this study is to critically review the arguments made in the literature and examine whether measurable effects of RFI on financial market development and access to finance exist in the countries of Sub-Saharan Africa. RFI is defined as the process of opening up capital accounts among countries of geographical proximity, including a liberalisation of cross-border activities of financial institutions within the integrating area. This process is two-dimensional, caused by market forces (e.g., foreign bank penetration) and political institutionalisation (e.g., harmonisation of payment systems, regulatory harmonisation, and regional institutional development). RFI is to be distinguished from global financial integration (or financial globalisation), which refers to a country's entrance in global financial markets by removing its capital controls vis-à-vis other countries (cf. García-Herrero and Wooldridge, 2007, p. 58). In particular, this study investigates whether and how countries involved in a RFI project differ from other countries in Sub-Saharan Africa in terms of financial development and firm's financing conditions. For this purpose, we gather data on financial market development, cost of and access to finance, cross border financial flows, membership in an RFI project, and institutional development from various sources (including IMF (2008); Bureau van Dijk Electronic Publishing (2010); World Bank and International Financial Corporation (2010); Knack (1999)) and apply cross-country regressions based on an approach first proposed by Chinn and Ito (2006). Our results suggest that RFI positively affects financial development when combined with a sufficient level of institutional quality. However, we also find that RFI appears to have negative effects on access to finance for small enterprises.

The rest of this paper is structured as follows. The following section defines the relevant key terms. Section 3 reviews the theoretical literature on the benefits and costs of international and regional financial integration. Section 4 gives a brief overview of the regional context, i.e. financial markets in Sub-Saharan Africa and the three Regional Economic Communities (RECs). In Section 5 we then investigate empirically the effects of RFI on financial development and financing conditions for enterprises in SSA. Section 6 concludes.

## 2. Definitions

We use the term *Regional Economic Community* (REC) in the sense of the Abuja treaty (cf. AU, 1991) that provides the foundation for the African Economic Community (AEC). It defines an REC as a bloc of countries which coordinate their economic activities and which form a part of the AEC. Currently, the African Union acknowledges eight regional cooperation projects as building blocs of the AEC. These building blocs and their sub-groups form 14 RECs in SSA.

Defining RFI in general terms is quite easy. However, in order to compare countries which engage in RFI with others that do not we need a specific working definition of RFI. The literature usually distinguishes between *de facto* and *de jure* measures of financial integration (cf. Kose *et al.*, 2006a).

*De jure* measures aim to quantify the degree of legal restrictions on capital movements (e.g. Chinn and Ito, 2006). Since the formal removal of capital controls does not necessarily imply the actual occurrence of cross-border capital flows, *de facto* measure try to estimate the amount of capital exchanged between economies (see e.g. Lane and Milesi-Ferretti, 2003).

Given serious constraints on data availability of bilateral financial flows in SSA, we have to suffice with a *de jure* measure of RFI that assesses legal restrictions on capital flows. To this end, we apply a qualitative approach. In particular, we regard an REC as an *RFI project* if it meets the two following conditions. First, a formal agreement must be met by all member countries on all topics listed in Table 2.1. Those criteria are regarded by UNECA and SADC (2010) as key elements of RFI. Second, there must be no overlapping membership by a significant number of member countries with other RFI projects. Wakeman-Linn and Wagh (2011) argue that overlapping membership structures negatively affect the implementation of RFI due to potential political dissent. We thus exclude RECs which meet the first condition but have overlapping memberships on the assumption that RFI implementation is not highly developed in RECs with overlapping memberships.

**Table 2.1: Elements of RFI**

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- 
- Removal of capital controls
  - Regulatory and supervisory harmonisation
  - Creation of regional institutions
  - Harmonisation of payment systems
- 
- 

Source: Compiled by authors based on UNECA and SADC (2010)

### **3. Theoretical considerations**

This section reviews the theoretical literature on financial integration. It is structured in two parts. First, we review the theoretical costs and benefits of financial integration, regardless whether it takes place in regional or a global context. We then discuss some *specific aspects* relating to RFI that are not relevant in the case of financial globalisation. In order to keep the descriptions short, we will concentrate on the arguments relevant to developing countries.

#### **3.1 Financial integration: Benefits and reservations**

##### **3.1.1 Benefits**

Most of the theoretical literature maintains that financial integration is beneficial because it entails macroeconomic growth and stability (cf., García-Herrero and Wooldridge, 2007). While most of the proponents of financial integration agree on this, there are diverging views on the transmission channels through which financial integration effects growth and stability.<sup>1</sup>

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<sup>1</sup> Various studies mention more merits of financial integration than growth and macroeconomic stability, for example financial development. One can disagree if financial development is an end itself or a supportive element for the broader goal of overall growth. But this is rather a matter of conceptualisation than of the substance of the arguments. For the sake of order we thus understand all the other ‘goals’ as transmission channels through which growth and stability are affected.

The arguments can be structured in two groups. The first group represents an “earlier wave of financial globalisation literature” (Kose *et al.*, 2006b, p. 1) deriving from the neoclassical tradition. The arguments of the second group are more recent and were mostly developed as a response to a lack of empirical evidence for the earlier theoretical predictions. The first group asserts that financial integration achieves macroeconomic growth and stability *directly*, whereas the second group proposes that the effects are rather *indirect* (see Mishkin, 2007).

Direct effects of financial integration: The early literature encompasses four direct benefits of financial integration: increased domestic investment, spill-over effects of foreign direct investment, consumption smoothing and international risk sharing.

First, financial integration is supposed to *enhance domestic investment* by providing a larger pool of funds for domestic firms. If a low level of income constraints a country’s ability to create large savings, and if the costs of capital on international markets do not exceed the marginal return of domestic investment projects, domestic enterprises can borrow on international capital markets. This should increase domestic investment and economic growth in the respective country.

Proponents of this theoretical view underline the implications of this concept for developing countries. They argue that developing countries have a lower capital-labour ratio. This results – other things equal – in lower marginal labour productivity and lower wages and, given the law of diminishing returns, in a higher marginal product of capital. Therefore, the neoclassical framework predicts that capital should flow from industrialised to developing countries (cf. Lucas, 1990).

Second, the early literature emphasises the specific benefits of *foreign direct investment* (FDI). FDI is described as a transmission channel of technological and managerial knowledge (see e.g. MacDougall, 1960; Borensztein *et al.*, 1998; Berthelemy and Démurger, 2000). Positive effects of such transfers are, for instance, higher skilled human capital and lower costs to introduce new varieties of capital (see Borensztein *et al.*, 1998, for a formal exposition).

Third, financial integration should enable countries to borrow funds from international capital markets in times of economic distress and lend in better times. Financial integration should thus lead to *consumption smoothing*. By reducing the volatility of consumption, financial integration is therefore expected to positively affect macroeconomic stability (e.g., Agénor, 2010).

In a similar manner, *risk diversification* is regarded as an important benefit of financial integration. Investors who are residents of a financially integrated country can diversify between different types of domestic and foreign assets. Thereby, risk can be shared internationally which allows aggregate reduction of risk and higher macroeconomic stability (e.g., Obstfeld, 1998). This is highly relevant for developing countries whose domestic markets provide little opportunity for asset diversification, which is often related to low diversification of the real economy.<sup>2</sup>

Indirect benefits of financial integration: The traditional theory has been seriously challenged on two grounds. First, empirical research does not find a positive correlation between financial integration and economic growth (cf. Kose *et al.*, 2006b), and sometimes even a negative one (cf. Gourinchas and Jeanne, 2007; Prasad *et al.*, 2007). Second, international investment flows do not show the patterns predicted by neoclassical theory. In contrary, capital flows rather from developing to industrialised countries, as it has been outlined by Lucas (1990).

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<sup>2</sup> A thin production base is especially prevalent in developing countries with a colonial past, which applies to almost the entire SSA region, since colonial regimes tended to implement agricultural production of only one good in their colonies. In some cases, the colonial policy created production structures which persist until today (cf. Rodney, 2003).

As a response, the newer theoretical literature emphasises the *indirect* benefits of financial integration. Kose *et al.* (2006b, 2007) provide a framework for the indirect benefits of financial integration. They argue that the merits of financial integration manifest in “*collateral benefits*” (Kose *et al.*, 2007, p. 44). This term describes unintended, yet positive, side-effects of financial integration. Kose *et al.* identify three main susceptible areas for such collateral benefits: financial sector development, institutional quality, and macroeconomic policy.

*Financial development* – defined as an increase in the size *and* the efficiency of the financial sector (Mishkin, 2007) – can be enhanced by the penetration of foreign financial institutions into the integrating country. As argued by Mishkin (2007) as well as Rajan and Zingales (2003) one important potential consequence of financial integration is the reduction of *financial repression*. Financial repression describes a situation where a country’s financial system is poorly developed because powerful politico-economic actors (so-called “incumbents”) prevent further development of the financial system. The involvement of foreign financial institutions can break open such structures characterised by monopolies, government-owned financial institutions or both, leading to more efficient and less costly financial intermediation and, hence, financial development (see Baldwin and Forslid, 2000).

Furthermore, the entrance of foreign financial intermediaries should also stimulate *institutional development*. Foreign institutions from countries with higher regulatory standards may introduce “best practices” (Mishkin, 2007) to the financial sector of the host country, and thus help to implement prudential regulation and improve the stability of the domestic financial sector. Due to their outsider status, they have an interest in minimising information asymmetries which typically represent a more severe problem for foreign financial institutions than for domestic ones. Therefore, international financial institutions have an incentive to enforce accounting standards and regulations (Mishkin, 2007).

And finally, international financial integration is viewed as having positive effects on a country’s *macroeconomic policy*. Inadequate economic policies, like unsustainable fiscal policies or a malfunctioning regulatory system, are thought to encourage capital outflows and, consequently, higher domestic interest rates. This creates pressure on policymakers and therefore an incentive for them to implement prudential macroeconomic policies (Obstfeld, 1998; Kose *et al.*, 2007).

### **3.1.2 Obstacles, limits, and costs**

Having outlined the potential benefits of financial integration as predicted by theory, we will now turn to the potential problems associated with financial integration. We will first discuss the “threshold conditions” for successful financial integration and succinctly review the potential costs that international financial integration might entail.

#### *Threshold conditions for successful financial integration*

An insufficient economic, political, or institutional environment can counteract the merits of financial integration. That, in turn, implies that certain prerequisites must be prevalent in an integrating country to allow it to benefit from financial integration. Kose *et al.* (2006b, p. 35) term those prerequisites “threshold conditions”. They identify four such thresholds: financial sector development, institutional quality, quality of domestic macroeconomic policies, and trade integration. According to them, the absence or insufficiency of any of the threshold conditions can limit or counteract potential positive effects of financial integration.

*Financial development* is important for financial integration, because a larger and more efficient financial sector is more likely to channel capital inflows to its most productive uses. However, this channelling of capital inflows will be limited if the financial sector is poorly developed.

*Institutional quality* is also important because it mainly affects “not just the outcomes of financial integration but the actual level of integration” (Kose *et al.*, 2006b p. ), since economic and political institutions constitute the framework for the implementation of financial integration.

Similarly, the quality of *macroeconomic policies* affects the composition of inflows, since sound policies tend to attract not only more capital inflows, but also relatively more FDI and equity inflows. Such inflows require investors’ confidence in the macroeconomic stability of the host country.

Fourthly, Kose *et al.* point to the importance of a country’s exchange rate policy. The “impossible trinity” of international macroeconomics stipulates that countries cannot maintain financial integration, an exchange rate peg, and autonomy of monetary policy at the same time. Therefore, assuming that developing countries need to align their monetary policy - at least to some extent - towards domestic goals, they face a trade-off between financial integration and a pegged exchange rate. For this reason, Kose *et al.* regard flexible exchange rates as a special threshold condition for financial integration.

Finally, Kose *et al.* regard *trade integration* as an important precondition for financial integration, since economies whose real economy is relatively isolated from the rest of the world are more likely to suffer from the effects of financial crises associated with financial integration. Closed economies cannot compensate the contraction of domestic aggregate demand triggered by a financial crisis by exports, and are therefore more vulnerable when opening up their capital markets.

#### *Potential costs of international financial integration*

While most of the literature on financial integration has focussed on the supposed benefits of international financial integration, there are also critical perspectives. One potential cost of financial integration derives from its influence on the effectiveness of other *macroeconomic policy tools*. Opening the capital account is likely to diminish a country’s monetary policy autonomy, even if it employs flexible exchange rates.<sup>3</sup>

Financial integration can also have adverse effects on the competitiveness of a country’s export sector and therefore on overall economic growth. The transmission channel behind those adverse effects is the *real exchange rate*. When capital flows into a country, it appreciates the country’s currency in real terms. This decreases the competitiveness of domestic goods and makes investment in tradables less profitable. Therefore, investment in the export sector recedes and aggregate spending diminishes. This effect is in particularly harmful for developing countries depending on commodity export (Rodrik and Subramanian, 2008; Rodrik, 2008).

In addition, financial integration can create tremendous costs in the form of *financial crises*. There are various mechanisms behind the nexus between financial integration and financial crisis. First, an opening of the capital account changes the behaviour of domestic banks. If domestic banks are allowed to lend abroad, this can entail two adverse types of behaviour. On the one hand, banks tend to expand their lending activities abroad in businesses in which they have only limited experience. Typically, the supervisory bodies lack the expertise to supervise the new lending activities of the banks on international capital markets. As a result, the number of non-performing loans of banks

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<sup>3</sup> For a review of the empirical literature on this issue see Reade and Volz (2011).

increases and the balance sheets of financial institutions begin to deteriorate. If this process continues, banks come under the suspicion of potential or actual failure. This can erode the trust of depositors in their banks leading to bank runs, banks panics, and even more failing institutions (Mishkin, 2007, p. 276). On the other hand, a similar mechanism can occur with regards to capital inflows. If domestic institutions start to obtain loans from abroad they typically pay high interest rates, while foreign lenders view their investment as being implicitly protected by the host government or the IMF. This impression of safety is reinforced if the country has a fixed exchange rate regime, giving “foreign investors a sense of lower risk” (Mishkin, 2007, p. 276). This inflow of capital entails excessive lending by financial institutions, either domestically or abroad, thus triggering the same process described above.

Second, financial integration can increase the likelihood of financial crises due to the volatile nature of international capital flows. In extreme cases countries can experience an unanticipated withdrawal of short-term capital - so-called sudden stops (Calvo and Reinhart, 2002). Theory provides two explanations for such reversals of capital: *herding behaviour* and *contagion*. Contagion describes the phenomenon of a “loss of confidence in the economic prospects of a country, as a result of developments elsewhere” (Agénor, 2010, p. 1100). Herding occurs when a high number of investors “charge into risky ventures without adequate information and appreciation of the risk-reward trade-offs and, at the first sign of trouble, flee to safer havens” (Bikhchandani and Sharma, 2000, p. 279). In the absence of capital controls both contagion effects and herding behaviour can cause rapid outflows of capital from an integrated country with adverse economic and social consequences.

Finally, financial integration could also have adverse effects on *financing conditions for small enterprises*. There are two explanations why financing conditions for small enterprises can be negatively affected in the context of financial integration - the “large bank barriers hypothesis” and the “foreign-owned bank barrier hypothesis” (Berger *et al.*, 2001). The large bank barriers hypothesis argues as follows: efficient lending depends on how much reliable information banks can obtain about their customers. One particularly efficient lending form is “relationship lending” which describes the process of gathering information about borrowers “beyond the relatively transparent data available in the financial statement and other sources” through “contact over time with the firm, its owner, and its local community on a variety of dimensions” (Berger *et al.*, 2001, p. 2). Large banks find it difficult to extend their lending activities to smaller firms, since they cannot gather information about them via relationship lending. This can lead to reduced lending to smaller enterprises by large financial institutions. As argued by Chick and Dow (1994), higher competition in the banking sector, which correlates with the international integration of banking, entails a concentration of the banking sector. Financial integration that leads to a concentration in banking could thus result in diminished access to finance for small firms.

In a similar line, the foreign-owned bank barrier hypothesis argues, similarly to Mishkin (2007), that foreign banks have disadvantages compared to domestic financial institutions due to information asymmetries. Foreign banks, like large banks, find it typically more difficult to engage in relationship lending and extend credit to smaller businesses which are more likely to encounter problems in adhering to standardised credit procedures than large firms. Foreign banks, therefore, tend to “cherry-pick their clients” (Volz, 2008, p. 22), i.e. they will tend to lend to larger enterprises. Thus, if a financial market is dominated by foreign firms, this can result in sharp credit constraints for small enterprises.

### 3.2 Regionalism vs. globalisation

Having reviewed the potential benefits of and problems with international financial integration, we will now address some theoretical issues relating specifically to RFI. A number of recent studies argue that RFI is associated with specific benefits others than those of financial globalisation (see e.g. UNECA and AU, 2008; UNECA and SADC, 2010; Wakeman-Linn and Wagh, 2011; Bhatia, 2009; García-Herrero and Wooldridge, 2007).

There are three main arguments for RFI – as opposed to integration into global financial markets – in the literature. The first underlines the positive implications of RFI created by cooperation in *institutional and political issues*. García-Herrero and Wooldridge (2007, p. 59) point out that RFI is more likely to generate benefits on the institutional side than financial globalisation because the creation of regional institutions requires a much more intensive engagement in institutional development than the removal of capital controls. With regards to politics, Bhatia *et al.* (2009, p. 30) argue that RFI can entail benefits in the political sphere by providing “powerful incentive for domestic financial reforms”. Although those arguments correctly state that RFI puts a stronger focus on institutional development and policy issues, they are just another version of the *collateral benefits argument* proposed by Kose *et al.* (2006a). They merely state that the degree of those benefits should be higher in RFI than in financial globalisation.

A second group of arguments emphasises the effects of RFI on *financial development* in terms of size and efficiency. Concerning the size of the financial sector, UNECA and SADC (2010, p. 5) asserts that “bringing together scarce savings” is a major merit of RFI. From this point of view RFI serves as a pooling mechanism to consolidate otherwise lowly developed financial markets to a larger market for funds available to potential private debtors in the region. With regard to the efficiency of financial intermediation, García-Herrero and Wooldridge (2007) argue that geographical proximity can mitigate information asymmetries, due to a more extensive exchange of information. This allows a more efficient allocation of financial resources. Correspondingly, Bhatia *et al.* (2009, p. 30) assert that “RFI reduces transaction costs and increases the effectiveness of financial institutions”. This point of view is connected to the notion that RFI entails economies of scale by concentrating financial intermediation within a region. The advantages of economies of scale and less information asymmetries are indeed specific potential features of RFI, relying on the geographical proximity of RFI not given in the case of financial globalisation. In contrast, the argument of the consolidated savings merely replicates the argument of the direct effect of financial integration due to a larger scope of available funds.

A third line of arguments focuses on the positive effects of RFI on financing conditions for enterprises. UNECA and AU (2008, p. 122) highlight the fact that RFI includes “several advantages [...], particularly for small and medium-sized firms. Integration could also remove certain forms of credit constraints [...]. The law of large numbers guarantees less exposure to credit risk as the number of clients increases”. Creditors prefer to provide loans in an RFI area because it enables them to diversify risk among a large group of debtors. This argument draws upon the risk diversification argument outlined in the previous section, although with a focus on its effects on financing conditions for small enterprises. However, as we mentioned earlier, financial integration can also inhibit access to finance for small enterprises. We will examine this aspect in detail in the empirical part of the study.

Negative aspects of RFI are barely discussed in the literature as compared to those of financial integration in general. Some studies mention *implementation problems* as an obstacle for RFI. One particular problem can occur when different RFI projects with diverging harmonisation standards overlap (see Wakeman-Linn and Wagh, 2011), i.e. when countries of one RFI project also participate in another project.

## 4. Regional context

The SSA region currently encompasses 14 RECs (Table 4.1).<sup>4</sup> All of the 47 SSA countries are members of at least one REC. On average SSA countries participate in three economic cooperation projects. Table A.1 shows which countries are members in which REC. Almost all RECs put a strong focus on trade integration, and some are monetary unions.

**Table 4.1: Regional Economic Communities in Sub-Saharan Africa, 2010**

<b>West- and Central Africa</b>	
Economic Community of West African States	ECOWAS
West African Monetary Zone	WAMZ
Economic Community of Central African States	ECCAS
L'Union Économique et Monétaire Ouest-Africaine	UEMOA
Communauté Économique et Monétaire de l'Afrique Centrale	CEMAC
<b>Southern Africa</b>	
Common Markets of Eastern and Southern Africa	COMESA
Southern African Development Community	SADC
Southern African Customs Union	SACU
Common Monetary Area	CMA
East African Community	EAC
<b>SSA and beyond</b>	
Union du Maghreb Arabe	UMA
Commission de l'Océan Indien	COI
Intergovernmental Authority on Development	IGAD
Community of Sahel-Saharan States	CEN-SAD

Note: RECs of African Economic Community are reported.

Source: Compiled by authors based on AU (2011) and Metzger (2008).

However, only a few of these RECs engage in RFI that meets our definition outlined above. Analysing the political agendas and agreements of the 14 RECs, as well as the literature dealing with politico-economic progress in those regions, with regards to the RFI criteria presented in Table 2.1 we identified four RECs that tend towards financial market integration (cf. Wakeman-Linn and Wagh, 2011). Those four RECs are the *East African Community* (EAC), the *Common Monetary Area*, the *L'Union Économique et Monétaire Ouest-Africaine* (UEMOA) and the *Communauté Économique et Monétaire de l'Afrique Centrale* (CEMAC).

*East African Community (EAC)*: The EAC has focused on the removal of capital restrictions among their founding members within the last decade (see East African Community, 2010a). The treaty establishing the East African Community (1999) highlights the importance of banking and capital market integration. It focuses on the harmonisation of the regulatory and supervisory frameworks (Article 85b), promotion of “co-operation among the stock-exchanges, capital markets and securities’ regulators” (Article 85g), as well the harmonisation of “capital market policies on cross-border listing,

<sup>4</sup> We focus on the RECs which are officially acknowledged by the African Union as well as their subgroups (cf. AU, 2011).

foreign portfolio investors, taxation of capital market transactions, accounting, auditing and financial reporting standards, procedures for setting commissions and other charges” (Article 85c). Furthermore, the member countries agreed to “ensure the unimpeded flow of capital within the Community” (Article 86a). Recently the EAC has put a stronger emphasis on the harmonisation of payment systems by setting up the East African Payment System (EAPS) (see East African Community, 2010b; African Trade Policy Centre, 2010).

*Union Économique et Monétaire Ouest-Africaine (UEMOA)*: In UEMOA there are no legal restrictions on capital in- and outflows (cf. Wakeman-Linn and Wagh, 2011).<sup>5</sup> Since 2004, banks are allowed to operate in all member countries with one single permit (cf. Sy, 2007). Various institutions have been created on a regional level. For example, the supervision and regulation of the entire banking sector in the region is conducted by the *Commission Bancaire de l’UEMOA*, which is controlled by the regional central banks (cf. Banque Centrale des États de l’Afrique de l’Ouest, 2008a). There is a regional stock and bond market - the *Bourse Régionale des Valeurs Mobilières*. It was created in 1998 and is supervised by the regional supervisory commission *Conseil Régional de l’Épargne Publique et de Marchés Financiers* (cf. Sy, 2007, p. 99). Furthermore, the UEMOA set up the so called *Système de Transfert Automatisé et de Règlement dans l’UEMOA (STAR-UEMOA)* which implements modern payment systems on a regional level (cf. Banque Centrale des États de l’Afrique de l’Ouest, 2008b, 2006).

*Communauté Économique et Monétaire de l’Afrique Centrale (CEMAC)*: CEMAC resembles UEMOA in terms of the institutionalisation of RFI. There is a uniform banking law for the entire region. Banks are allowed to operate in the entire region with a single permit (cf. Wakeman-Linn and Wagh, 2011). Regional institutions are in place. Supervision and regulation of the banking sector is conducted by the *Commission Bancaire de l’Afrique Centrale (COBAC)* (cf. Wakeman-Linn and Wagh, 2011). In 2003 the *Bourse des Valeurs Mobilières d’Afrique Centrale (BVMAC)*, a regional stock exchange was established. It is supervised by the *Commission de Surveillance du Marché Financier Régional* (cf. COSUMAF, 2010). In 2003 the *Banque des États de l’Afrique Centrale (BEAC)* launched a reform project which “focuses on harmonization of payment and settlement instruments and the standardization of formats for information and data exchange amongst various participants.” (African Trade Policy Centre, 2010, p. 3)

*Common Monetary Area (CMA)*: The CMA member countries have formally agreed on the removal of capital controls (cf. Wang *et al.*, 2007). In contrast to the other RECs projects, the formal integration process of financial markets in CMA is marked by the supremacy of one dominant player - South Africa. Article 5 of the CMA Agreement states that the prescriptions of the regulation and supervision of the financial markets and the banking sector of South Africa also apply to other CMA member countries (Wang *et al.*, 2007). The *South African Exchange Control Regulations* states that “Namibia, Lesotho and Swaziland should be treated as part of the domestic territory and not as foreign” (South Africa Government, 2007, p. 4). Moreover, the payment systems of the small CMA members are aligned to South African standards and “[a]s a result of these structures, the banking sector in all CMA countries complies with international banking standards and regulations” (Metzger, 2008, p. 5), since South Africa itself implemented international standards in terms of regulation and payment systems. The requirements outlined in Table 2.1 are therefore met, although the integration process is politically centred in South Africa and not on a supranational basis. Furthermore, the *de facto* data on RFI activity that are available for the CMA due to higher reporting standards of South African banks show

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<sup>5</sup> The combination of UEMOA and CEMAC constitutes what is known as the zone of the franc *Communauté Financière Africaine (CFA franc zone)*. The two different currencies of UEMOA and CEMAC are both pegged to the euro.

that South African banks are active in the entire CMA region (e.g., Metzger, 2008). For this reason we consider CMA as an exception with regards to overlapping membership.

*RECs with overlapping membership structures:* Several other RECs mention financial market integration in their agenda. However, in practice, the focus appears to be on trade integration, with RFI not being a topic of priority. Furthermore, a stronger emphasis on RFI would face various problems on the political level for other RECs “due to a lack of political commitment in member countries” (Khandelwal, 2004, p. 10). For example, the Southern African Development Community (SADC) and the Common Markets of Eastern and Southern Africa (COMESA) tried to launch a payment system harmonisation project, yet, it lacks serious acceptance by their member countries (see African Trade Policy Centre, 2010), which is arguably due to overlapping memberships (cf. Wakeman-Linn and Wagh, 2011). Seven countries have a membership in both SADC and COMESA.<sup>6</sup> This is already more than half of all SADC member countries. In fact, no single SADC member is only a SADC member; COMESA only includes three countries which are not members of other RECs. We also find overlapping membership patterns in the cases of the Economic Community of West African States (ECOWAS) and the Economic Community of Central African States (ECCAS). ECOWAS includes two other RECs, the West African Monetary Zone (WAMZ) and UEMOA, as well as Cape Verde and Liberia. The WAMZ member countries, in turn, have not yet taken political steps towards RFI and Liberia’s commitment is limited due to its post-conflict status (cf. West African Monetary Institute, 2007). ECCAS includes the CEMAC region and five other countries. Its members show little commitment to extended RFI (ECCAS, 2007). The other RECs have not included RFI in their agenda (see COI, 2006; Intergovernmental Authority on Development, 2010; SACU, 2002).

## 5. Empirical analysis of the costs and benefits of RFI

We now turn to an empirical investigation of the effects of RFI on the financial sectors of SSA countries. We proceed in two steps. We first analyse the effect of RFI on *financial development*. We then estimate the effects of RFI on the *financing conditions* of enterprises.

### 5.1 RFI and financial development

An extensive empirical literature investigates the effects of *general* financial openness on financial development by using cross-country data (see for instance Levine, 1996; Claessens *et al.*, 2001; Chinn and Ito, 2006) or panel data of individual countries (see Barajas *et al.*, 2000; Clarke *et al.*, 2000; Unite and Sullivan, 2003). There is also a growing number of quantitative studies examining the effects of *RFI* on financial development. An example is Espinoza *et al.* (2010) who found a positive connection between RFI and stock market development for the countries of the Gulf Cooperation Council.

However, empirical research in SSA on RFI is relatively rare. Wakeman-Linn and Wagh (2011) provide some descriptive analysis arguing that member countries of RFI projects do not significantly differ from non-member countries. Jansen and Vennes (2006) compare RFI with international financial integration from the perspective of SSA countries, yet they only identify *potential* benefits in terms of financial sector efficiency gains. They argue that the gains are higher for financial globalisation than for RFI. In a qualitative investigation Lovegrove *et al.* (2007) point out that membership in CMA contributes more to financial development than SACU membership.

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<sup>6</sup> All CMA countries are also members of SADC.

### 5.1.1 Data and methodology

We follow the approach of Chinn and Ito (2006), who analyse the relation between financial development and general capital account openness with ordinary least squares (OLS) analysis, including an interaction term. They measure the degree of general openness with an index (the Chinn-Ito-Index) which is calculated on the basis of data on legal restrictions of cross-border capital flows from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER; see International Monetary Fund, 2010). They apply their regression to a broad array of least developed countries and emerging markets.

We replicate Chinn and Ito's regression, modifying one variable in order to measure RFI instead of general financial openness. In our specification, the Chinn-Ito-Index is replaced by a dummy ( $RFI_j$ ), indicating the membership of the respective country in a RFI project (cf. Section 4). Our model specification is as follows:

$$FD_{jt} - FD_{j(t-4)} = \alpha_0 + \alpha_1 RFI_{j(t-4)} + \alpha_2 L_j + \alpha_3 (RFI_{j(t-4)} L_j) + \alpha_4 FD_{j(t-4)} + \alpha_5 GDP_{j(t-4)} + \alpha_6 (CPI_{jt} - CPI_{j(t-4)}) + \alpha_7 OPENEC_{j(t-4)} + \varepsilon_j$$

The variables are defined as follows.

*Financial development:*  $FD_{jt}$  denotes the level of financial development in country  $j$  in period  $t$ . Thus, the term  $FD_{jt} - FD_{j(t-4)}$  represents the average growth rate of financial development over a four-year period. We use the average of the period from 2004 to 2008. Following Mishkin's (2007) definition of financial development as an increase in the size *and* the efficiency of the financial sector, we use five different indicators of  $FD_{jt}$ :

$$PCGDP_j = \frac{\textit{Private Credit of Commercial Banks and NBFIs}}{\textit{GDP}} \quad (1)$$

$$LIQUID_j = \frac{\textit{Liquid Liabilities}}{\textit{GDP}} \quad (2)$$

$$NIMG_j = \frac{\textit{Net Interest Revenue}}{\textit{Interest Earning Assets of all commercial banks}} \quad (3)$$

$$CIR_j = \frac{\textit{Costs of all Commercial Banks}}{\textit{Income Ratio of all Commercial Banks}} \quad (4)$$

$$OVHD_j = \frac{\textit{Overhead Costs of all Commercial Banks}}{\textit{Total Assets of all commercial banks}} \quad (5)$$

The first two indicators measure the size of the financial sector.  $PCGDP_j$  is a measure of the activity of private financial intermediaries. It is a very common indicator of the size of the financial sector (see

e.g. Volz, 2008; Beck *et al.*, 2000). *LIQUID<sub>j</sub>* is the broadest measure of the size of the financial sector. It includes “currency plus demand and interest-bearing liabilities of banks and other financial intermediaries divided by GDP” (Beck *et al.*, 2010). *NIMG<sub>j</sub>*, *CIR<sub>j</sub>*, and *OVHD<sub>j</sub>* are all measures of the efficiency of the banking sector. *NIMG<sub>j</sub>* denotes the net interest margin. It equals the ratio of the net interest revenues of all banks to their total earning assets. *OVHD<sub>j</sub>* equals the overhead costs of all banks as a fraction of their total assets. *CIR<sub>j</sub>* is the cost-income ratio of banks. It describes the ratio of the overhead costs of all banks to their gross revenues. High values of these three variables indicate low efficiency of the banking sector. We draw these data from Beck *et al.* (2010), whose dataset encompasses various other indicators of the financial structure of SSA countries, including indicators for financial sector efficiency. However, in most of the cases there are large gaps in the dataset, so that the sample size is too small for a regression analysis. This is especially true for data on bond and stock market development. Beck *et al.* (2010) also provide detailed explanations about the calculation method on which the data are based.

As was pointed out, our regression will not include level data for the dependent variable, but the four year average growth rates of the indicators described above. The growth rates are shown in Table 5.1. We use the average growth rate between 2004 and 2008, because within this period the most data are available.

**Table 5.1: Average growth rates of financial development in SSA between 2004 and 2008**

<b>Growth rates, 2004-2008</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Dev.</b>
SSA (Whole sample)					
PCGDP	46	-0.2275	0.4233	0.0375	0.0922
LIQUID	46	-0.3606	0.1887	0.0465	0.0913
NIMG	41	-0.0614	0.0784	-0.0034	0.0312
CIR	41	-1.3132	1.0555	-0.1292	0.4191
OVHD	42	-0.0878	0.0292	-0.0141	0.0240
SSA (excl. ZAF and ZWE)					
PCGDP	44	-0.2275	0.1334	0.0251	0.0605
LIQUID	44	-0.3606	0.1887	0.0465	0.0930
NIMG	39	-0.0614	0.0784	-0.0049	0.0308
CIR	39	-1.3132	1.0555	-0.1270	0.4272
OVHD	40	-0.0878	0.0292	-0.0144	0.0244

Source: Authors’ calculations based on Beck *et al.* (2010).

*RFI*: We measure *RFI<sub>j</sub>* with a dummy variable which takes the value 1 if the country is a member of an RFI project, and 0, if not. We argued in Section 4 that CMA, UEMOA, CEMAC, and EAC should be regarded as RFI projects. The country dummy of country *j* thus takes the value 1, if it has been a member in one of those four RECs in 2004 (cf. Table A.1). We assume lags in the potential effects of RFI membership on financial development so that it will take time for RFI to create measurable outcomes. This is taken into account by the RFI dummy, since there has been no change in the

membership structure of either CMA, UEMOA, CEMAC or EAC within the decade preceding 2004. Since Burundi and Rwanda joined the EAC only in 2007 (see allAfrica, 2007) we do not count them as RFI countries because we assume that potential effects of RFI would not have had enough time yet to unfold. Between 2004 and 2008 there have been no other changes in the membership status of RFI countries.

We are aware that the usage of such a coarse indicator for the  $RFI_j$  variable limits the explanatory power and reliability of our analysis. However, given the lack of data for bilateral financial flows for most countries in SSA, we consider this to be the only feasibly approach to investigate the effects of RFI in this region.<sup>7</sup> We will discuss the various negative implications on the interpretability of our results in detail below.

*Institutional development:* In Section 3 we mentioned that various studies highlight institutional development as an important precondition for deriving positive effects from RFI. We thus include a variable for institutional development to test its role in enhancing financial development.

To measure institutional quality we rely on indicators from three different sources: the Worldwide Governance Indicators (WGI) published by the World Bank (2010d), data taken from the World Bank's Country Policy and Institutional Assessment (CPIA; World Bank 2009) as well as the State Fragility Index (SFI) published by the Center for Systemic Peace (2009).<sup>8</sup>

The WGI dataset encompasses six indicators measuring the quality of governance in 128 countries, three of which measure institutional quality in particular. The measures are *regulatory quality* ( $RQ_j$ ), *rule of law* ( $ROL_j$ ) and *control of corruption* ( $CC_j$ ). The values range from minus 2.5 (low institutional development) to 2.5. (high institutional development).

The CPIA dataset includes one general measure for the average quality of public sector management and institutions ( $CPIA_j$ ) calculated by the average value of five sub-indicators on the enforcement of property rights, the quality of budget and financial management, the efficiency of revenue mobilisation, the quality of public administration, as well as transparency and accounting. (cf. World Bank 2009). The values range from 0 (low development) to 5 (high development).

The SFI measures the level of state fragility which is strongly connected to the absence of institutions channelling economic activities. It is calculated on the basis of eight sub-indicators. The highest level of fragility is denoted by the value 25, the lowest by zero. We calculate the average of each indicator for the period 2004 to 2008, except for the  $CPIA_j$  measure which is only available from 2005.

In addition, we include an interactive term,  $RFI_{j(t-4)}L_j$ , which shows the combined effect of institutional development and RFI on financial development. We already pointed out that theory predicts a positive relation between institutional and financial development. Furthermore, institutional

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<sup>7</sup> We also tested the Chinn-Ito-Index in our regression instead of the RFI dummy. Unfortunately, this index has the same value for almost all SSA countries and, therefore, provides no interpretable results. Furthermore, it is not a measure for RFI but for general financial openness. Thus, it does not contribute to the research question at hand.

<sup>8</sup> Other studies, including Chinn and Ito (2006), use data from the International Country Risk Guide (ICRG) to measure institutional development. However, those data are available only publicly available for the years 1984 to 1997 (which is the timespan that Chinn and Ito used for their regressions). Running the regression with the ICRG data leads to results which are very similar to those reported below. However, given that the ICRG data are somewhat outdated we refrain from reporting the results here; they are available on request. Apart from the ICRG data, Chinn and Ito (2006) employ the legal measures provided by La Porta *et al.* (1998) which are commonly used as indicators of institutional quality. However, since this dataset includes only four SSA countries it cannot be used for our purposes.

development is seen as a prerequisite as well as an indirect benefit of RFI (cf. Kose *et al.*, 2006a). We thus expect the combined effect of RFI and institutional development in our regression results to be positive.

*Control variables:* Finally a vector of control variables is included in the specification. While the literature provides theoretical justification of a broad array of variables that could be determinants of financial development, there is no consensus on which variables should be included in an estimation. Here we will follow Chinn and Ito (2006) and apply only a small set of control variables, due to our small sample size. In particular, we use the natural log of GDP in 2004 ( $GDP_j$ ), average inflation between 2004 and 2008 ( $CPI_j$ ), and trade openness in 2004 ( $OPENEC_j$ , which is the ratio of imports and exports to GDP). Higher financial development is associated with more complex economic structures that go along with higher income. High inflation distorts the decision processes of economic actors and may encourage them to save in real goods rather than financial assets. The link between financial development and trade openness is supported by empirical literature (Beck, 2002). The sources for the data are Beck *et al.* (2010), World Bank (2010c), and Heston *et al.* (2009), respectively. Furthermore, we include the level of financial development in 2004 ( $FD_{j(t-4)}$ ) as a control variable. This variable is included because the initial level of financial development is likely to influence the growth rates of the following period.

## 5.1.2 Results

Tables 5.2-5.6 depict the results of our regression analysis. Tables 5.2., 5.3. and 5.4 present the estimations for each indicator of institutional development from the WGI dataset ( $CC_j$ ,  $ROL_j$ , and  $RQ_j$ ). Table 5.5 shows the results for the  $CPI_j$  data, and Table 5.6 reports the results for the  $SFI_j$ . In each Table, Columns 1 to 5 display the results for the sample including all SSA countries for the different measures of financial development. Columns 6 to 10 show the results when outliers are excluded.<sup>9</sup> There are no problems with multicollinearity.

The results in Tables 5.2-5.4 show significant coefficients for the  $RFI_j$  variable when the dependent variable is  $LIQUID_j$  and outliers are excluded. At the same time, we find significant coefficients for the institutional development variables  $ROL_j$  and  $RQ_j$  in the  $LIQUID_j$  regression when outliers are excluded.  $CPI_j$  also has a significant coefficient in the  $LIQUID_j$  regression.

However, since our specification includes an interactive term, we cannot interpret the coefficients of  $RFI_j$  or the institutional quality variables independently. If we want to filter out the influence of RFI on financial development, we have to calculate the *total effect* of  $RFI_j$  (cf. Chinn and Ito, 2006). This is done for a given value of institutional quality by summing up the effects of the  $RFI_j$  variable and the interaction term predicted by our model. Furthermore, if the OLS coefficient estimate of the interaction term is significant, then the total effect is also significant. Therefore, we can calculate the total effect for the results where we find a significant estimate (with  $p < 0.05$ ) for the interactive term, i.e., Column 7 of Table 5.2, 5.3, 5.4. and 5.6.<sup>10</sup> An overview of the total effects is given in Table 5.7

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<sup>9</sup> A value is defined as an outlier when it is two standard deviations above or below the average (cf. Chinn and Ito, 2006).

<sup>10</sup> We calculate the total effects presented in Table 5.7 as  $(FD_{j(t-4)} - FD_j)^* = \alpha_1 RFI_{j(t-4)} + \alpha_3 (RFI_{j(t-4)} L_j) s + x_M$ . The equation shows the total effect (indicated by the asterisk) of the variable  $RFI_{j(t-4)}$  on the annual growth rate of financial development  $FD_{j(t-4)} - FD_j$  for a given level of institutional quality  $L_j$ .  $s$  denotes the standard deviation and  $x_M$  the mean of the annual growth rate of financial development. The effect of joining an RFI project is the difference between the total effect when  $RFI_j$  is one and the total effect, when it is zero. If it is zero,

for the non-RFI countries.<sup>11</sup> The results have to be interpreted carefully. They show us how, according to our model predictions, the financial sector size of an individual country would be affected if the respective country joined an RFI project, given its respective level of institutional quality.

For example, a country like Madagascar, which has an average control of corruption index of minus 0.096 (on a scale between minus 2.5 and 2.5), would increase its growth rate of liquid liabilities by 6.1 percent, whereas Nigeria, with a  $CC_j$  value of minus 1.11, would find its liquid liabilities ratio decreasing by 5.8 percent. Similarly, Cape Verde which has an average rule of law index of 0.518 (also on a minus 2.5 to 2.5 scale) would increase the average growth rate of its liquid liabilities by 12 percent, whereas the Democratic Republic of Congo would experience a decline by 10.8 percent due to a low rule of law index of minus 1.73.

When using  $RQ_j$  as a measure of institutional development we find that the growth rate of Liberia's liquid liabilities to GDP ratio would decrease by 12.3 percent because  $RQ_j$  accounts for minus 1.53. In contrast, the growth rate of Mauritius' financial sector is estimated to increase by 16.7 percent due to its regulatory quality index of 0.53.

Using  $SFI_j$  as a measure of institutional development, the results are again in line with the previous estimations. For instance, the growth rate of the financial sector of Sierra Leone would be negatively affected by RFI decreasing by 11.4 percent due to its relatively high level of state fragility (21 on a scale between 23 and zero). The opposite is true for Ghana which has a  $SFI_j$  of only 14 and would see the growth rate of its financial sector increase by 4.8 percent according to our estimations.

The results in Table 5.7 are largely consistent, irrespective of which institutional development indicator is used. The effect of RFI on the growth rate of liquid liabilities to GDP for the average level of institutional quality is minus 0.2 percent for the  $CC_j$  variable, minus 1 percent for the rule of law variable, minus 3 percent for  $RQ_j$ , and minus 3.3 for the  $SFI_j$ . This implies that on average the effects of RFI on financial sector development in SSA is rather small or negative given the relatively low level of institutional development prevalent in most SSA countries. Overall, our results reconfirm earlier contributions that have emphasised the importance of the economic, political and institutional environment for successful financial integration.

Furthermore we can calculate the average level of institutional development which is necessary to enable a positive effect of RFI on financial development. We find that, in terms of the control of corruption index, a minimum level of minus 0.62 is required to channel RFI to an increase in the size of the financial sector in terms of liquid liabilities to GDP. The rule of law index must be at least 0.67 and the regulatory quality index at least 0.64. The  $SFI_j$  must not exceed 16 in order to make RFI beneficial in terms of growth benefits of the financial sector. We can interpret these values as the *threshold conditions* described by Kose et al. (2006b). Our results suggest that countries with low institutional quality should be careful or even stay away from engaging in RFI until their institutional quality has reached a level where they can actually benefit from RFI. This underlines the great importance of getting the sequencing of financial opening right to avoid adverse effects.

However, one has to be cautious in interpreting Table 5.7. The estimated effects for some countries are very high, and they should not be understood as an elaborate prediction of the effects of RFI on a

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the whole equation becomes zero too. Therefore, the total effect of RFI on financial development is:  
 $(FD_{j(t-4)} - FD_j)^* = \alpha_1 + \alpha_3 L_j S + x_M$ .

<sup>11</sup> We restrict our analysis to non-RFI countries, since the interpretation of the total effect of RFI membership on countries that are already involved in RFI projects makes little economic sense. It would show us the effect of RFI on a RFI member country for the hypothetical situation that the respective country was not an RFI member.

single country, but rather as an illustration of the relation between institutional development and the effectiveness of RFI for financial development.

A few more qualifications are apposite. First, the effects calculated in Table 5.7 are based on the assumption that differences in the effect of  $RFI_j$  on  $LIQUID_j$  are causally determined by differences in the level of institutional quality. This interpretation derives from the *threshold conditions* argument stated by Kose *et al.* (2006a). However, the data provide no insight into the establishment of causality. It could also be possible that institutional quality has a different effect on the relation of institutional quality and  $LIQUID_j$  depending on the value of  $RFI_j$ .<sup>12</sup> Our interpretation is therefore based on theoretical reasoning, not on information we extracted from the data analysis.

Second, since we only obtained significant results in Columns 2 and 8 of Table 5.3 and Column 7 of Table 5.5. we could only discuss the effects of RFI on the size of the financial sector measured as the ratio of liquid liabilities to GDP. This measure, however, also includes the liabilities of the central bank. Therefore, our results give no information about the particular effect of RFI on the size of the *private* financial sector. This limitation becomes even more severe for the interpretability of our results with respect to the fact that the private financial sector in most SSA countries is relatively shallow compared to central bank liabilities. Based on data from Beck *et al.* (2010), we can calculate the average ratio of deposit money banks to central bank assets. It accounts for 23.75 percent. This supports the notion that our results may display the effect of RFI on central bank liabilities rather than on the size of the private financial sector.

Overall, our results suggest that RFI affects the overall size of the financial sector of SSA countries positively if a sufficient level of institutional quality is prevalent. If a country lacks institutional quality, RFI negatively affects the size of the financial sector. However, we cannot identify any particular positive effect on the size of the private financial sector. Furthermore, we did not find a significant effect of RFI on the efficiency of the banking sector, or on the size and efficiency of stock markets.

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<sup>12</sup> It might come to mind that differences in the relation between  $LIQUID_j$  and institutional quality depending on the value of  $RFI_j$  could be interpreted in terms of collateral benefits of RFI (outlined in section 3). But the collateral benefits of RFI would affect the absolute level of institutional quality and not its relation to  $LIQUID_j$ .

**Table 5.2**

**Regression results: Regional financial integration, financial development, and institutional development (Control for Corruption [CCj])**

		SSA					excl. outliers				
Dependent Var.		PCGDP	LIQUID	NIMG	CIR	OVHD	PCGDP	LIQUID	NIMG	CIR	OVHD
Num.of Obs.		46	46	41	41	42	44	45	39	40	42
R square		0.434	0.552	0.222	0.600	0.178	0.141	0.405	0.458	0.545	0.134
Adj.R square		0.269	0.409	- 0.081	0.453	- 0.110	- 0.132	0.206	0.221	0.358	- 0.185
Column		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Coeff.	RFI	0.181 [0.219]	- 0.346 [0.214]	0.041 [0.304]	- 0.211 [0.239]	- 0.187 [0.302]	- 0.462 [0.295]	- 0.530 ** [0.248]	0.482 [0.292]	- 0.223 [0.263]	- 0.272 [0.313]
	CC	- 0.415 [0.300]	0.220 [0.373]	- 0.373 [0.355]	- 0.137 [0.257]	- 0.042 [0.387]	- 0.130 [0.475]	- 0.681 [0.466]	0.369 [0.359]	0.033 [0.284]	- 0.103 [0.395]
	INT[CC,RFI]	0.362 [0.240]	0.085 [0.278]	0.227 [0.356]	0.172 [0.248]	0.137 [0.369]	0.041 [0.364]	0.748 ** [0.344]	0.102 [0.329]	0.042 [0.271]	0.020 [0.372]
	FD[t-4]	0.596 *** [0.197]	- 0.859 *** [0.271]	- 0.356 [0.260]	- 0.730 *** [0.182]	- 0.208 [0.243]	- 0.275 [0.322]	- 0.025 [0.299]	- 0.366 [0.250]	- 0.726 *** [0.194]	- 0.255 [0.252]
	GDP	0.117 [0.229]	- 0.003 [0.207]	0.151 [0.328]	- 0.121 [0.188]	0.171 [0.270]	0.068 [0.289]	- 0.006 [0.227]	- 0.034 [0.292]	- 0.057 [0.208]	0.146 [0.284]
	CPI	0.086 [0.224]	- 0.358 [0.219]	- 0.059 [0.317]	- 0.176 [0.276]	0.018 [0.328]	- 0.287 [0.302]	- 0.721 ** [0.258]	0.380 [0.288]	- 0.229 [0.296]	- 0.183 [0.343]
	OPENEC	- 0.158 [0.189]	- 0.060 [0.184]	0.049 [0.248]	- 0.049 [0.167]	- 0.036 [0.226]	- 0.064 [0.249]	0.349 * [0.185]	- 0.120 [0.209]	- 0.037 [0.189]	0.001 [0.238]

Notes: Point estimates from OLS; heteroskedasticity robust standard errors in parentheses. \* significant at 10 percent, \*\*significant at 5 percent, \*\*\*significant at 1 percent. Dependent variable is the average growth rate of financial development between 2004 and 2008. RFI is measured by a dummy variable taking the value 1, if a country is member of an RFI project, and otherwise 0.

Source: Authors' calculations.

**Table 5.3****Regression results: Regional financial integration, financial development, and institutional development [Rule of Law [ROLj]]**

		SSA					excl. outliers				
Dependent Var.		PCGDP	LIQUID	NIMG	CIR	OVHD	PCGDP	LIQUID	NIMG	CIR	OVHD
Num.of Obs.		46	46	41	41	42	44	45	39	40	42
R square		0.475	0.542	0.265	0.612	0.193	0.159	0.457	0.425	0.553	0.138
Adj.R square		0.322	0.396	- 0.021	0.469	- 0.090	- 0.108	0.276	0.173	0.368	- 0.179
Column		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Coeff.	RFI	0.099 [0.213]	- 0.376 * [0.214]	- 0.048 [0.304]	- 0.259 [0.239]	- 0.135 [0.313]	- 0.404 [0.285]	- 0.593 ** [0.234]	0.372 [0.316]	- 0.290 [0.265]	- 0.201 [0.327]
	CC	- 0.520 * [0.257]	0.222 [0.319]	- 0.455 [0.309]	- 0.195 [0.220]	0.170 [0.328]	0.296 [0.436]	- 0.903 ** [0.404]	0.109 [0.320]	- 0.121 [0.236]	0.138 [0.336]
	INT[ROL,RFI]	0.364 * [0.208]	0.062 [0.230]	0.245 [0.325]	0.225 [0.222]	0.014 [0.320]	- 0.087 [0.319]	0.760 ** [0.276]	0.252 [0.305]	0.150 [0.233]	- 0.143 [0.324]
	FD[t-4]	0.652 *** [0.187]	- 0.884 *** [0.266]	- 0.361 [0.254]	- 0.718 *** [0.184]	- 0.177 [0.240]	- 0.479 [0.330]	0.158 [0.299]	- 0.444 [0.256]	- 0.727 *** [0.193]	- 0.224 [0.251]
	GDP	0.134 [0.219]	0.012 [0.210]	0.133 [0.309]	- 0.128 [0.185]	0.165 [0.267]	- 0.029 [0.290]	0.049 [0.217]	0.018 [0.292]	- 0.062 [0.207]	0.143 [0.282]
	CPI	0.045 [0.215]	- 0.374 * [0.215]	- 0.125 [0.315]	- 0.200 [0.271]	0.083 [0.333]	- 0.209 [0.290]	- 0.729 *** [0.239]	0.319 [0.308]	- 0.285 [0.293]	- 0.105 [0.351]
	OPENEC	- 0.137 [0.185]	- 0.046 [0.193]	0.093 [0.265]	- 0.013 [0.172]	- 0.048 [0.236]	- 0.068 [0.249]	0.368 * [0.180]	- 0.077 [0.232]	0.004 [0.194]	- 0.042 [0.250]

Notes: Point estimates from OLS; heteroskedasticity robust standard errors in parentheses. \* significant at 10 percent, \*\*significant at 5 percent, \*\*\*significant at 1 percent. Dependent variable is the average growth rate of financial development between 2004 and 2008. RFI is measured by a dummy variable taking the value 1, if a country is member of an RFI project, and otherwise 0.

Source: Authors' calculations.

**Table 5.4**

**Regression results: Regional financial integration, financial development, and institutional development [Regulatory Quality [RQj]]**

		SSA					excl. outliers				
Dependent Var.		PCGDP	LIQUID	NIMG	CIR	OVHD	PCGDP	LIQUID	NIMG	CIR	OVHD
Num.of Obs.		46	46	41	41	42	44	45	39	40	42
R square		0.435	0.556	0.268	0.605	0.192	0.185	0.525	0.433	0.546	0.131
Adj.R square		0.270	0.415	- 0.017	0.459	- 0.090	- 0.074	0.366	0.185	0.360	- 0.189
Column		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Coeff.	RFI	0.166 [0.217]	- 0.453 ** [0.218]	- 0.020 [0.325]	- 0.255 [0.269]	- 0.263 [0.332]	- 0.428 [0.281]	- 0.643 ** [0.228]	0.204 [0.329]	- 0.270 [0.296]	- 0.283 [0.347]
	CC	- 0.436 [0.278]	0.348 [0.268]	- 0.493 [0.341]	- 0.206 [0.247]	0.012 [0.361]	0.408 [0.368]	- 1.090 *** [0.380]	0.126 [0.339]	- 0.111 [0.273]	- 0.043 [0.375]
	INT <sub>[RQ,RFI]</sub>	0.295 [0.259]	- 0.021 [0.239]	0.262 [0.390]	0.142 [0.274]	0.181 [0.383]	- 0.291 [0.315]	0.988 *** [0.294]	0.291 [0.366]	0.056 [0.303]	0.088 [0.397]
	FD <sub>[t-4]</sub>	0.610 *** [0.199]	- 0.891 *** [0.215]	- 0.323 [0.254]	- 0.754 *** [0.184]	- 0.189 [0.237]	- 0.494 * [0.273]	0.125 [0.251]	- 0.484 * [0.252]	- 0.741 *** [0.197]	- 0.223 [0.249]
	GDP	0.159 [0.244]	- 0.070 [0.234]	0.209 [0.328]	- 0.089 [0.197]	0.128 [0.275]	- 0.009 [0.314]	0.102 [0.232]	- 0.062 [0.315]	- 0.025 [0.219]	0.109 [0.291]
	CPI	0.108 [0.222]	- 0.420 * [0.215]	- 0.113 [0.326]	- 0.213 [0.278]	- 0.010 [0.339]	- 0.191 [0.285]	- 0.718 *** [0.228]	0.255 [0.312]	- 0.284 [0.300]	- 0.176 [0.355]
	OPENEC	- 0.234 [0.213]	0.062 [0.229]	0.050 [0.283]	- 0.045 [0.188]	0.018 [0.246]	- 0.059 [0.276]	0.437 ** [0.195]	- 0.031 [0.242]	- 0.030 [0.213]	0.024 [0.262]

Notes: Point estimates from OLS; heteroskedasticity robust standard errors in parentheses. \* significant at 10 percent, \*\*significant at 5 percent, \*\*\*significant at 1 percent. Dependent variable is the average growth rate of financial development between 2004 and 2008. RFI is measured by a dummy variable taking the value 1, if a country is member of an RFI project, and otherwise 0.

Source: Authors' calculations.

**Table 5.5**

**Regression results: Regional financial integration, financial development, and institutional development [Public Sector Management and Inst. [CPIAj]]**

		SSA					excl. outliers				
Dependent Var.		PCGDP	LIQUID	NIMG	CIR	OVHD	PCGDP	LIQUID	NIMG	CIR	OVHD
Num.of Obs.		41	39	36	35	36	40	39	34	33	35
R square		0.241	0.569	0.227	0.628	0.277	0.240	0.569	0.380	0.618	0.152
Adj.R square		- 0.039	0.392	- 0.160	0.428	- 0.084	- 0.055	0.392	0.019	0.375	- 0.304
Column		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Coeff.	RFI	- 0.035 [0.293]	- 0.459 * [0.248]	0.041 [0.381]	- 0.367 [0.328]	- 0.425 [0.357]	- 0.634 * [0.314]	- 0.459 * [0.248]	- 0.035 [0.437]	- 0.393 [0.362]	- 0.283 [0.407]
	CC	0.401 [0.370]	- 1.055 *** [0.348]	- 0.330 [0.312]	- 0.152 [0.234]	0.193 [0.333]	0.057 [0.396]	- 1.055 *** [0.348]	0.008 [0.319]	0.019 [0.242]	0.204 [0.344]
	INT[CPIA,RFI]	- 0.262 [0.346]	0.539 * [0.301]	0.071 [0.372]	0.305 [0.304]	0.240 [0.376]	0.193 [0.373]	0.539 * [0.301]	0.260 [0.374]	0.241 [0.337]	- 0.125 [0.404]
	FD[t-4]	- 0.493 * [0.240]	0.384 [0.224]	- 0.311 [0.277]	- 0.766 *** [0.243]	- 0.276 [0.262]	- 0.257 [0.257]	0.384 [0.224]	- 0.425 [0.274]	- 0.933 *** [0.261]	- 0.338 [0.291]
	GDP	0.152 [0.243]	- 0.041 [0.192]	0.044 [0.289]	- 0.031 [0.217]	0.056 [0.279]	0.101 [0.252]	- 0.041 [0.192]	0.010 [0.268]	0.173 [0.239]	0.002 [0.315]
	CPI	0.137 [0.284]	- 0.688 ** [0.247]	- 0.032 [0.355]	- 0.317 [0.338]	- 0.153 [0.369]	- 0.329 [0.308]	- 0.688 ** [0.247]	0.223 [0.348]	- 0.452 [0.361]	- 0.220 [0.400]
	OPENEC	- 0.323 [0.231]	0.344 * [0.182]	0.020 [0.307]	0.076 [0.245]	0.189 [0.301]	0.052 [0.248]	0.344 * [0.182]	- 0.295 [0.280]	0.096 [0.265]	0.155 [0.338]

Notes: Point estimates from OLS; heteroskedasticity robust standard errors in parentheses. \* significant at 10 percent, \*\*significant at 5 percent, \*\*\*significant at 1 percent. Dependent variable is the average growth rate of financial development between 2004 and 2008. RFI is measured by a dummy variable taking the value 1, if a country is member of an RFI project, and otherwise 0.

Source: Authors' calculations.

**Table 5.6**

**Regression results: Regional financial integration, financial development, and institutional development [State Fragility [SFIj]]**

		SSA					excl. outliers				
Dependent Var.		PCGDP	LIQUID	NIMG	CIR	OVHD	PCGDP	LIQUID	NIMG	CIR	OVHD
Num.of Obs.		43	41	39	40	41	41	41	37	38	40
R square		0.457	0.509	0.314	0.643	0.304	0.234	0.509	0.410	0.569	0.237
Adj.R square		0.275	0.329	0.032	0.504	0.048	- 0.048	0.329	0.135	0.380	- 0.059
Column		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Coeff.	RFI	0.147 [0.235]	- 0.502 * [0.244]	0.105 [0.296]	- 0.167 [0.239]	- 0.380 [0.295]	- 0.209 [0.315]	- 0.502 * [0.244]	0.218 [0.301]	- 0.251 [0.268]	- 0.410 [0.313]
	CC	0.432 [0.362]	0.654 [0.403]	0.697 [0.409]	0.490 [0.304]	- 0.529 [0.498]	- 0.089 [0.453]	0.654 [0.403]	- 0.011 [0.446]	0.351 [0.354]	- 0.618 [0.512]
	INT <sub>[SFI,RFI]</sub>	- 0.316 [0.348]	- 1.043 *** [0.351]	- 0.455 [0.427]	- 0.447 [0.301]	0.140 [0.491]	- 0.168 [0.422]	- 1.043 *** [0.351]	- 0.335 [0.449]	- 0.339 [0.349]	0.477 [0.493]
	FD <sub>[t-4]</sub>	0.582 *** [0.186]	- 0.182 [0.231]	- 0.301 [0.246]	- 0.715 *** [0.186]	- 0.188 [0.234]	- 0.515 * [0.259]	- 0.182 [0.231]	- 0.381 [0.250]	- 0.717 *** [0.202]	- 0.306 [0.249]
	GDP	0.150 [0.226]	- 0.134 [0.224]	0.138 [0.296]	- 0.137 [0.184]	0.109 [0.250]	- 0.024 [0.271]	- 0.134 [0.224]	0.005 [0.296]	- 0.074 [0.212]	0.152 [0.267]
	CPI	0.061 [0.255]	- 0.739 ** [0.258]	- 0.145 [0.320]	- 0.211 [0.264]	0.003 [0.318]	- 0.040 [0.337]	- 0.739 ** [0.258]	0.217 [0.327]	- 0.308 [0.293]	- 0.134 [0.336]
	OPENEC	- 0.069 [0.179]	0.379 ** [0.178]	0.189 [0.239]	0.003 [0.165]	- 0.132 [0.224]	- 0.122 [0.251]	0.379 ** [0.178]	- 0.209 [0.234]	0.022 [0.195]	- 0.061 [0.244]

Notes: Point estimates from OLS; heteroskedasticity robust standard errors in parentheses. \* significant at 10 percent, \*\*significant at 5 percent, \*\*\*significant at 1 percent. Dependent variable is the average growth rate of financial development between 2004 and 2008. RFI is measured by a dummy variable taking the value 1, if a country is member of an RFI project, and otherwise 0.

Source: Authors' calculations.

**Table 5.7: Estimated effects of RFI on average growth rate (2004-2008) of financial development to GDP in SSA for given level of institutional development (non-RFI countries, 1 = 100 percent)**

Country	Total Effect:			
	CCj	ROLj	RQj	SFI
Inst.Q.	LIQUIDj	LIQUIDj	LIQUIDj	LIQUIDj
Dep. Var.	excl.	excl.	excl.	incl./excl.
Outliers				
Angola	-0.080	-0.069	-0.065	-0.068
Botswana	0.184	0.132	0.167	0.256
Burundi	-0.054	-0.053	-0.081	-0.068
Cape Verde	0.133	0.120	0.060	n.a.
Congo, Dem. Rep.	-0.095	-0.108	-0.116	-0.160
Eritrea	0.048	-0.032	-0.187	0.025
Ethiopia	-0.007	-0.001	-0.041	-0.091
Gambia, The	-0.010	0.042	0.034	0.048
Ghana	0.060	0.061	0.073	0.048
Guinea	-0.056	-0.076	-0.060	-0.045
Guinea-Bissau	-0.057	-0.064	-0.062	-0.021
Liberia	-0.028	-0.061	-0.123	-0.091
Madagascar	0.061	0.033	0.051	0.094
Malawi	-0.006	0.042	0.020	0.025
Mauritania	0.019	-0.009	0.047	0.002
Mauritius	0.124	0.162	0.167	n.a.
Mozambique	0.005	0.003	0.023	0.002
Nigeria	-0.058	-0.062	-0.043	-0.091
Rwanda	0.037	-0.002	0.003	-0.091
São Tomé and Príncipe	-0.002	0.015	-0.017	n.a.
Seychelles	0.096	0.081	-0.031	n.a.
Sierra Leone	-0.051	-0.046	-0.052	-0.114
Somalia	-0.141	-0.185	-0.264	-0.160
Sudan	-0.084	-0.083	-0.081	-0.160
Zambia	-0.006	0.014	0.014	-0.045
Zimbabwe	-0.087	-0.109	-0.222	-0.021
<b>Mean</b>	<b>-0.002</b>	<b>-0.010</b>	<b>-0.030</b>	<b>-0.033</b>
<b>Threshold</b>	<b>-0.617</b>	<b>-0.667</b>	<b>-0.639</b>	<b>16</b>

Source: Authors' calculations.

## 5.2 RFI and financing conditions for enterprises

There is a rich empirical literature investigating the effects of international financial integration on access to finance in less developed countries and emerging markets, mostly focusing on the effects of penetration by financial institutions from advanced countries (see e.g. Clarke *et al.* 2006; Detragiache *et al.*, 2008; Degryse *et al.*, 2009). The role of RFI for credit constraints of firms has mainly been examined for the countries of Central and Eastern Europe (e.g. De Haas and Naaborg, 2005, 2006; Volz, 2004, 2008). To our knowledge, however, there are no studies investigating the effects of RFI on firms' access to finance in SSA countries.

### 5.2.1 Data and methodology

To measure the effect of RFI on financing conditions in SSA we use the following specification:

$$FC_j = \alpha_0 + \alpha_1 RFI_j + \alpha_2 CON_j + \alpha_3 FBI_j + \alpha_4 CBC_j + \alpha_5 SOB_j + \alpha_6 PCGDP_j + \alpha_7 CPI_j + \alpha_8 GROWTH_j + \alpha_9 OTHCONS_j + \varepsilon_j$$

The set of variables and the algebraic structure are based on Volz (2008) but were modified for our purposes. The variables are constructed as follows.

*Financing Conditions:*  $FC_j$  denotes the financing condition of country  $j$ , i.e. the variable describes how hard and costly it is for enterprises to obtain funds. To calculate an indicator form this variable we use micro data from enterprise surveys conducted by the International Finance Corporation (IFC) and the World Bank (2010). They include data from about 13,000 enterprises from 34 SSA countries regarding access to finance and costs of finance. In those surveys, interviewed entrepreneurs indicated whether they perceive access to finance as “no obstacle”, a “minor obstacle”, a “moderate obstacle”, a “major obstacle”, or a “very severe obstacle”. These are our *access to finance data*. Moreover, the interviewees were asked to estimate the average amount of collateral which they have to pay relative to the amount of loan. These are the *costs of finance data*. The enterprise surveys also distinguish between three different sizes of enterprises (small, medium, and large). Small are those enterprises with less than 20 employees, large enterprises have more than 100 employees, and the others are medium. We aggregate the access to finance data and calculate the following ratios:

$$AF_j = \frac{e_j^*}{e_j}$$

$$AFSMALL_j = \frac{se_j^*}{se_j}$$

$$AFLARGE_j = \frac{le_j^*}{le_j}$$

where  $e_j$  denotes the numbers of enterprises in country  $j$ ,  $se_j$  the number of small enterprises, and  $le_j$  the number of large enterprises. The variables with an asterisk denote the number of credit constrained enterprises. Enterprises are classified as credit constrained when they describe access to finance as a “severe obstacle” in the enterprise survey. Thus, for instance,  $le_j^*$  is defined as the number of large enterprises in country  $j$  that face credit constraints. Therefore,  $AF_j$  denotes the share of enterprises facing credit constraint.  $AFSMALL_j$  is the fraction of the small enterprises facing credit constraint, and  $AFLARGE_j$  the fraction of large enterprises facing credit constraint to all large enterprises.

Furthermore, we use the use the costs of finance data to calculate the following ratios:

$$CF_j = \frac{\sum_{i=1}^{n_j} c_{ij}}{n_j}$$

$$CFSMALL_j = \frac{\sum_{s=1}^{m_j} c_{sj}}{m_j}$$

$$CFLARGE_j = \frac{\sum_{l=1}^{k_j} c_{lj}}{k_j}$$

where  $i$  is the set of all firms,  $s$  and  $l$  are the sets of small firms and large firms, respectively. They are therefore subsets of  $i$ .  $n_j$  denotes the number of all firms  $i$ ,  $m_j$  denotes the number of small firms  $s$ , and  $k_j$  denotes the number of large firms  $l$ ; all of them in country  $j$ .  $c_{ij}$ ,  $c_{sj}$ , and  $c_{lj}$  are the amounts of collateral paid by enterprises  $i$ ,  $s$ , and  $l$ , respectively. Thus,  $CF_j$  denotes the average relative collateral of all firms,  $CFSMALL_j$  the average relative collateral of small firms, and  $CFLARGE_j$  the average relative collateral paid by large firms.

*RFI*: For  $RFI_j$  we use the same dummy variable as before. As discussed above, there are various theoretical predictions for the effects of RFI on access to and costs of finance. Therefore, from a theoretical viewpoint, the coefficient estimate can be either positive or negative.

*Concentration in the banking sector*:  $CON_j$  represents the concentration in country  $j$ 's banking sector measured by the amount of assets held by the three largest banks compared to the assets of the total banking sector. The data source is again Beck *et al.* (2010). As discussed in Section 3.1.2, the *large bank barriers hypothesis* predicts that banking concentration should have a negative effect on the access to finance and a positive effect on the costs of finance of finance for small businesses (i.e., raise the cost of finance), as well as a positive effect on the access to finance and a negative effect on the costs of finance of large enterprises. In contrast, the *monopolistic creditor hypothesis* (Petersen and Rajan, 1995), argues that a monopolistic creditor can expect firms that obtain a credit today to remain customers in the future. Since young (and thus small) firms have low actual cash flows and potentially high future cash flows, a monopolistic creditor can take this aspect into account when making loan decisions: it can charge actual interest rates which are lower than what would be the market interest rate in a comparable competitive situation, and it can charge interest rates which are higher than the competitive market rates in the future. In a competitive banking sector, a bank has to require market interest rates. The higher future interest rates would drive away the then larger (and more credit worthy) businesses to other banks. This leads to higher interest rates for small, young, and risky debtors in a competitive market than in a monopolistic one. For the  $CON_j$  variable we can, therefore, explain both directions of the outcome.

*Foreign bank involvement*:  $FBI_j$  stands for the foreign bank involvement in country  $j$ . We include this variable to test the *foreign-owned bank barrier hypothesis* outlined earlier. Akin to the large bank barriers hypothesis, the foreign bank barrier hypothesis asserts that a dominant role of foreign banks should have a negative effect on small enterprises' access to finance and a positive effect on their costs of finance, as well as a positive effect on the access to finance of large enterprises and a negative effect on their financing costs. On the other hand, a large part of the literature highlights the positive effects of foreign bank entry on the efficiency of the whole banking sector. According to this view, a more efficient allocation of credit should therefore have a positive effect on the credit conditions regardless of firm size. Therefore, we have two possible outcomes for the coefficient estimate of the  $FBI_j$  variable. We calculate an indicator for  $FBI_j$  on the basis of data provided by Bureau van Dijk

Electronic Publishing (2010). As a proxy we use the ratio of the amount of assets held by foreign banks to the amount of assets of the ten largest banks registered by the BankScope database. The calculation method is in line with Yeyati *et al.* (2004) and La Porta *et al.* (2002), since “data for the whole banking system [...] are highly correlated with the data for the top ten banks”(Yeyati *et al.*, 2004, p. 5).<sup>1</sup>

*Cross-border credit:*  $CBC_j$  is the cross border credit extended to country  $j$ , that is, the amount of loans from external banks reported to the Bank of International Settlements (BIS) in country  $j$  as a share of its GDP. The source is Beck *et al.* (2010). Cross-border credit should theoretically improve firm’s access to and lower their cost of finance. We thus expect to obtain negative coefficient estimates.

*State-owned banks:*  $SOB_j$  captures the role of state-owned banks, measured as the amount of assets of state-owned banks relative to the amount of assets of the entire banking sector. For the calculation we use the same method as for  $FBI_j$ , again using BankScope data provided by Bureau van Dijk Electronic Publishing (2010). On the one hand, state-owned banks can play a crucial role in providing access to finance, when there is an insufficient institutional environment and a lot of “fraudulent bankruptcy” (Gerschenkron, 1962, p. 19) leading to little acceptance of the private banking sector by the public. In such a case the government can fulfill the role of financial intermediary. Furthermore, state-owned banks are more isolated from market forces and can therefore focus on other goals than profit maximisation (see Volz, 2008). Those goals can include redistribution motives and therefore state-owned banks can be more willing to lend to small enterprises. On the other hand, the focus of state-owned banks on other goals than profit maximisation can have adverse effects on financing conditions for small enterprises. Firstly, it may lead to an inefficient allocation of resources (La Porta *et al.*, 2002), and secondly, it is not evident that the political goals of the government direct the fund flows of state-owned bank in a direction which is beneficial for small enterprises. For example, state-owned banks might tend to engage in lending to influential political actors or larger enterprises. This consequently leads to an exclusion of small businesses. Therefore, the variable  $SOB_j$  can have a positive (negative) effect on access to finance (costs of finance), as well as a negative (positive).

*Financial deepening:*  $PCGDP_j$  is the financial deepening in country  $j$ . As before, it is calculated as the amount of private credit provided by commercial banks and non-bank financial institutions as a share of GDP (PCGDP). The source is Beck *et al.* (2010). Since a deepening of financial markets should increase the availability of funds for enterprises, we expect to find a positive coefficient for this variable.

*Macroeconomic stability:*  $CPI_j$  represents the macroeconomic instability of the respective country measured by the CPI average for the period 2004 to 2008. The data are taken from the World Bank (2010c) World Development Indicators and Global Development Finance. Since macroeconomic instability increases the risk of investment, financial institutions will ask for a higher risk premium or collateral. We should thus expect positive coefficient estimates.

*Macroeconomic performance:*  $GROWTH_j$  denotes the average macroeconomic performance of country  $j$  between 2001 and 2008, measured by the real annual GDP growth rate. Higher economic growth is typically driven by higher investment rates. On the other hand, higher growth rates also invoke an increase in investment, since they alter investor’s expectations. We use an eight-year average, accounting for lagged effects (World Bank 2010c). We expect a negative coefficient for this variable.

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<sup>1</sup> Yeyati *et al.* (2004, p. 2) point out that “the regression coefficient between the two variables is 0.8 and the  $R^2$  is 0.5”. Further details on our calculation method can be provided on request.

*Other constraints:* *OTHCONS* denotes other constraints to the economic activities of enterprises, i.e. it represents conditions other than credit constraint that might negatively affect the entrepreneurial activities of the interviewees. This variable takes into account that the indicator of the access to finance variable is based on a subjective survey. Therefore, it is possible that interviewees in some countries *perceive* the constraint of access to finance as less severe, because other conditions are even more harmful for their business activities. This view is based on Kahneman and Tversky (1979) who argue that the underlying value function that determines the judgment of an economic actor includes a reference point which can vary depending on the context. For instance, if we assume two economies (A and B) where financial institutions have the same willingness to provide loans to enterprises, but the enterprises in country A face problems with an epidemic diseases which affects a significant percentage of its working population, while this is not the case in country B, this will lead, other things equal, to a lower perceived negative value of credit constraints by the enterprises in country B. Since we cannot include several variables that could adversely affect business conditions in SSA due our small sample size ( $n = 34$ ), we decide to include the number of AIDS death in 2008 per population as a proxy for other constraints on business activities.<sup>2</sup>

This choice is based on the empirical evidence of the negative effects of AIDS on entrepreneurial activities (e.g., Fraser *et al.*, 2002), and the relatively broad availability of data.<sup>3</sup> Including a variable for the number of AIDS deaths makes sense also for another reason: it would be rationale for banks to curtail lending to small businesses, which typically rely on its owner, if they have to fear that the latter would fall sick and therefore may not be able to repay. This reasoning would not hold for large businesses, since these would not be expected to go bankrupt because of the illness of parts of the management. We thus may also expect to find a negative effect of the *OTHCONS* variable on financing conditions, since banks might decide to provide less loans when a high rate of AIDS is prevalent. From a theoretical angle, an outcome in both directions is possible for the coefficient estimate of *OTHCONS*.

Table 5.6 gives an overview of the descriptive analysis of the explanatory variables.

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<sup>2</sup> Data on AIDS death per population for the previous years are not available. Therefore, we use the data of 2008 assuming that they highly correlate with the data of the previous years.

<sup>3</sup> We also tested the following other indicators for the *OTHCONS<sub>j</sub>* variable: post conflict status, average secondary enrollment between 2000 and 2004 as a proxy for human capital Deléchat et al. (cf. 2009, p. 15), average percentage of the population living in rural areas between 2001 and 2008, as well as electricity consumption per capita. The data source for all the indicators is World Bank (2010c). The results are similar to those of the AIDS death indicator. But often there are serious gaps in the dataset and which reduces the R square of the estimation. The same applies to the ICRG data on institutional development (cf. Knack, 1999) which we used in the former regression. We have 8 missing country data in our survey set and 10 missing data in our ICRG set which do not overlap, this reduces the sample size significantly and makes a meaningful analysis infeasible.

**Table 5.8: Descriptive data of explanatory variables (1 = 100 percent)**

	Mean	Std. Dev.	N
CON <sub>j</sub>	0.8456	0.1542	38
FBI <sub>j</sub>	0.5288	0.3006	34
CBC <sub>j</sub>	0.8028	3.5992	34
SOB <sub>j</sub>	0.1534	0.1966	38
PCGDP <sub>j</sub>	0.2031	0.2850	35
CPI <sub>j</sub>	0.0727	4.5323	35
GROWTH <sub>j</sub>	0.0464	0.0267	34
OTHCONS <sub>j</sub>	0.0017	0.0019	34

Source: Authors' calculations.

### 5.2.2 Results

Table 5.7 depicts the regression results. Columns 1 to 3 show the results for the access to finance regression; Columns 4 to 6 for the costs of finance regression. We find a relatively high adjusted R square for all dependent variables except  $AFLARGE_j$  and  $CF_j$ . We also test for robustness against outliers applying the same method as before. Furthermore, we face no problems with multicollinearity.

The results show no significant effect of RFI on access to finance of all firms in the aggregate. We also find no significant effect on the credit conditions of large enterprises. However, there is a significant positive effect of RFI on the credit constraints of small enterprises ( $AFSMALL_j$ ), suggesting that RFI impedes small firms' access to finance. Furthermore, there is a significant positive influence of foreign bank involvement on the severity of the credit constraint for small enterprises, while we don't find such an influence for large enterprises. These results provide some support for the foreign bank barrier hypothesis in the context of RFI.

We find no evidence for the large bank barriers hypothesis in the context of RFI based on the arguments of Berger *et al.* (2001) and Chick and Dow (1994). We do find a negative coefficient for  $CON_j$  on large banks' access to finance, suggesting that concentration in the banking sector serves large banks well, but this effect is not significant.

A surprising result is the positive coefficient estimate for  $PCGDP_j$ , which is significant for small firms and hence indicating a negative influence of financial deepening on access to finance for small enterprises.

Furthermore, we find significant results for the variables  $CPI_j$  and  $GROWTH_j$  that are in line with theoretical predictions. Higher macroeconomic instability negatively affects the credit conditions for all enterprises in aggregate (that is, we find the expected coefficient estimates for  $CPI_j$ ). This effect is mainly driven by the negative effects on small enterprises. In addition, we find that better macroeconomic performance leads to a reduction of credit constraints for enterprises. If we distinguish between large and small enterprises, we find that the effect is significant for small enterprises but not for large ones.

**Table 5.9****Regression results: RFI and financing conditions for small and large enterprises in SSA**

Dependent Var.		AFj	AFSMALLj	AFLARGEj	CFj	CFSMALLj	CFLARGEj
Num.of Obs.		34	34	34	34	34	34
R square		0.6648	0.6482	0.4641	0.6061	0.8340	0.9212
Adj.R square		0.4328	0.4047	0.0931	0.1631	0.5851	0.7439
Column		[1]	[2]	[3]	[4]	[5]	[6]
Coeff.	RFIj	0.3538 [0.2563]	0.5422 * [0.2625]	0.2247 [0.3241]	-0.6392 [0.3599]	-0.4709 [0.2579]	0.4130 [0.2162]
	CONj	-0.2766 [0.1908]	-0.3195 [0.1955]	-0.0714 [0.2413]	-0.1211 [0.2851]	0.0467 [0.2112]	-0.3282 [0.1602]
	FBIj	0.3501 [0.2185]	0.4490 * [0.2238]	0.2399 [0.2763]	-0.6106 [0.3954]	-1.0475 ** [0.3631]	-0.4175 [0.3017]
	CBCj	-0.2307 [0.1891]	-0.2749 [0.1937]	-0.3927 [0.2391]	-0.3789 [0.2924]	-0.3848 [0.2353]	0.1607 [0.2193]
	SOBj	0.2900 [0.2671]	0.1757 [0.2736]	0.0310 [0.3377]	-0.6515 [0.4373]	-0.9830 ** [0.3507]	-0.4768 [0.3475]
	PCGDPj	0.0669 [0.2135]	0.4783 ** [0.2187]	0.1605 [0.27]	-0.2976 [0.361]	-0.6744 * [0.3198]	-0.7600 * [0.2937]
	CPIj	1.1071 *** [0.3378]	1.1157 *** [0.3461]	0.5205 [0.4272]	-0.1558 [0.4755]	-0.7102 * [0.3495]	0.6198 * [0.2876]
	GROWTHj	-1.2095 *** [0.33]	-1.1550 *** [0.3381]	-0.2329 [0.4173]	0.1376 [0.4802]	0.5927 [0.356]	-0.4340 [0.2769]
	OTHCONj	-0.7591 *** [0.2312]	-0.7759 *** [0.2368]	-0.8085 ** [0.2923]	0.1506 [0.3325]	0.0742 [0.278]	0.6812 ** [0.2306]

Notes: Point estimates from OLS; heteroskedasticity robust standard errors in parentheses. No constants reported. \* significant at 10 percent, \*\*significant at 5 percent, \*\*\*significant at 1 percent. First group of dependent variables (AFj , AF SMALLj , and AF LARGEj ): access to finance measured by the share of (all/small/large) firms facing credit constraints as a share of (all/small/large) firms. Second group of dependent variables (AFj , AF SMALLj , and AF LARGEj ): average collateral paid for credit by (all/small/large) firms as a share of credit amount.

Source: Authors' calculations.

Finally, the negative estimates for *OTHCONS* support the theory that other constraints lead to a lower perception of the severity of credit constraints. As we see in Columns 1, 2, and 3 its coefficient is negative and significant for  $AF_j$ ,  $AFSMALL_j$ , and  $AFLARGE_j$ .

Turning to the costs of finance regression analysis, we obtain the following results. There are no significant effects of RFI on the costs of finance of all firms in the aggregate, or on the financing costs of large and small firms.

However, we now find a negative effect of foreign bank involvement on the costs of finance. This result is puzzling, since one might assume costs of finance and access to finance to be influenced by all variables in the same way, since we assumed that both are indicators for the same construct, i.e. financing conditions. A possible explanation is *credit rationing*. As pointed out by Stiglitz and Weiss (1981) borrowers willing to pay higher interest rates and collateral are also more likely to engage in risky project (the so called adverse selection effect). If interest rates or collateral requirements exceed a certain level the average risk of the loan portfolio of banks, the expected loss exceeds the bank's expected return. Therefore, banks require interest rates and collateral requirements below this level even if this implies an unsatisfied excess demand for credit. Instead of raising interest rates or collateral requirements banks deny loans to borrowers based on qualitative aspects.

We can support this argument by calculating the correlation coefficients of the costs of finance and the access to finance variables. The results show that there is virtually no correlation between access to finance and costs of finance.<sup>1</sup> This supports the notion that small enterprises find it hard to get access to finance, although costs of finance are low. We can further support this notion by looking at the micro data before aggregation. We find that those enterprises describing access to finance as a very severe obstacle also tended to leave the question for the amount of collateral unanswered.<sup>2</sup> This implies that collateral is not the primary reason for the perceived credit constraint. Thus, credit rationing can be an explanation for the seemingly contradictory regression results.

From this point of view the results of the costs of finance regression do not contradict the results of the access to finance regression. The two dependent variables merely represent two different aspects of the financing conditions of enterprises. Therefore we can interpret the results in accordance with the foreign bank barriers hypothesis in the context of RFI.

For the control variables we find the following results. We uncover a negative effect of  $CBC_j$  on costs of finance of small enterprises. This is in line with the theoretical predictions stated above. In addition, we find a negative coefficient for financial deepening, which means that financial deepening lowers the costs of finance of small and large firms. Whereas this is in line with theoretical predictions, it points, however, in the opposite direction than the access to finance regression, just like  $RFI_j$  and  $FBI_j$ .

The  $CPI_j$  results are surprising. On the one hand, we find a positive  $CPI_j$  coefficient for the costs of finance for large enterprises. This is in line with the theoretical proposition that macroeconomic instability increases the riskiness of investment projects and therefore the amount of collateral required by banks or the risk premium they demand. On the other hand, we find a significant negative effect of  $CPI_j$  on the costs of finance of small enterprises. A possible explanation is that inflation reduces the real cost of credit for debtors. But this would apply also to large firms. Moreover, it would imply that banks are not sufficiently pricing in inflation risk.

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<sup>1</sup> We also tested the connection by integrating the costs of finance variables as an explanatory variable in the access to finance regression, and vice versa. Here we also find no significant relation. Results are available on request.

<sup>2</sup> Information about the micro data are available on request.

The variable  $OTHCONS_j$  should not have an effect on the costs of finance from a theoretical perspective. Indeed, the effect of  $OTHCONS_j$  vanishes when the dependent variable is changed from  $CF_j$  to  $AF_j$ , and  $AFSMALL_j$  to  $CFSMALL_j$ , respectively. The only exception is  $CFLARGE$  which is significantly affected by the ratio of AIDS death to population. This supports the notion that large businesses also suffer from the effects of a high level of AIDS on their human capital. Banks can take that into account and require higher collateral even from large businesses when the AIDS death level is high.

Summing up, our results provide support to the notion that RFI has adverse effects on the access to finance for small enterprises. We could not find a significant effect of RFI on access to finance for large enterprises or all enterprises in aggregate. Furthermore, we find that RFI reduces the costs of finance of small as well as large enterprise, but we argue that this effect reaches only a fraction of small firms since many small enterprises are excluded from access to financial due to credit rationing.

## 6. Conclusions

This study provides an analysis of the costs and benefits of RFI for the financial sectors of SSA countries. We have tested two hypotheses from the literature on general financial openness. The first hypothesis states that RFI entails financial development; the second that it has adverse effects on the financing conditions of small enterprises. We have identified CMA, EAC, UEMOA, and CEMAC as four RECs that engage in RFI more than other economic communities in SSA. Subsequently, we analysed how the membership in one of these four RFI projects explains cross-country differences in financial development as well as access to and costs of finance for small and large enterprises.

With regard to the relation between RFI and financial development, the results suggest that RFI contributes to the overall size of the financial sector if a certain level of institutional quality is prevalent. If such a level of institutional quality was lacking, we found a negative effect of RFI on financial development. However, the results apply only to a very broad measure of the size of the financial sector, including the liabilities of the central banks. We could not identify any particular significant effect on the size of the private financial sector. Moreover, a significant influence of RFI on the efficiency of the banking sector could not be identified.

Regarding the analysis of the effects of RFI on access to and costs of finance of enterprises in SSA, results were mixed. Whereas RFI shows a positive effect on credit constraints measured by the subjective assessment of small enterprises, we found no effect on credit constraints measured in terms of small enterprises' costs of finance. Furthermore, there is a significant positive influence of foreign bank involvement on the severity of the credit constraint for small enterprises, but a negative effect on their costs of finance. We interpreted the results as an indication of the exclusion of small enterprises from funds while the overall level of costs of finance remained modest. From this point of view, the analysis provides some support for the foreign-owned bank barrier hypothesis stating that RFI and the corresponding penetration of the integrating country by foreign banks impede the financing conditions of small enterprises.

Data availability has been a severe constraint in investigating the research question. Most notably, the lack of data on bilateral capital flows prevented us from constructing an indicator of the *de facto* level of RFI between SSA countries. The resulting reliance on a dummy variable as an indicator of *de jure* RFI is certainly the most severe limitation of this research project. In particular, it does not allow for differentiation of various stages of RFI in the analysis. Moreover, the qualitative construction of the dummy is certainly contestable. Advocates of integration projects like SADC might point out that the treaties and agreements of this large REC resemble those of the EAC. We agree with this notion, yet, we wish to underline the importance of overlapping membership as an impeding factor for RFI.

Apart from the RFI project definition and the dummy variable, sample size is also a problem. Since the regression analysis estimated many insignificant relationships, we would require a larger sample to identify significant relationships. This also implies that we could not include more explanatory variables in the analysis.

Furthermore, the analysis faced the problem of possible conflation of RFI with other politico economic indicators that could also influence the dependent variables. For example, RFI is typically accompanied by trade integration processes that can also affect financial development (cf. Beck, 2002).

The limitations to the analysis highlight the need for further data collection and further empirical research. With regard to data collection, our research emphasises that more data on bilateral capital flows in SSA are the main bottleneck for investigating the effects of RFI. With regard to further research, our study shows that there are also potentially detrimental effects of RFI that are worth to be examined further for SSA.

Despite the limitations of this work, our research contributes first empirical evidence to the debate on financial developments effects of RFI in SSA. The study highlights a neglected aspect of RFI in SSA: its impact on the financing conditions for small enterprises. In contradiction to the widespread opinion that RFI will benefit all parties involved, our work suggests that RFI may in some cases have little benefit or even adverse effects for small enterprises. This notion is important for the academic discourse on RFI, but even more so for the political sphere. RFI enjoys high priority on the political agenda of various SSA countries. Our research suggests that further discussion on the costs and benefits of RFI is needed to avoid unexpected social costs in terms of higher inequality.

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## A.1 Annex

Table A.1

Membership of Sub-Saharan African countries in Regional Economic Communities (RECs) with focus on RFI (CMA, UEMOA, CEMAC, EAC) and without a focus on RFI (COMESA, WAMZ, ECCAS, SACU, SADC, ECOWAS) in 2004

Country	RFI Projects				other RECs					Variable: $RFI_j$	
	UEMOA	CEMAC	EAC	CMA	SACU	COMESA	WAMZ	ECCAS	SADC		ECOWAS
Angola	-	-	-	-	-	-	-	Yes	Yes	-	0
Benin	Yes	-	-	-	-	-	-	-	-	Yes	1
Botswana	-	-	-	-	Yes	-	-	-	Yes	-	0
Burkina Faso	Yes	-	-	-	-	-	-	-	-	Yes	1
Burundi	-	-	(Yes)	-	-	Yes	-	Yes	-	-	1
Cameroon	-	Yes	-	-	-	-	-	Yes	-	-	1
Cape Verde	-	-	-	-	-	-	-	-	-	Yes	0
Central Africa	-	Yes	-	-	-	-	-	Yes	-	-	1
Chad	-	Yes	-	-	-	-	-	Yes	-	-	1
Comoros	-	-	-	-	-	Yes	-	-	-	-	0
Congo, DR	-	-	-	-	-	Yes	-	Yes	Yes	-	0
Congo, Rep.	-	Yes	-	-	-	-	-	Yes	-	-	1
Côte d'Ivoire	Yes	-	-	-	-	-	-	-	-	Yes	1
Eritrea	-	-	-	-	-	Yes	-	-	-	-	0
Ethiopia	-	-	-	-	-	Yes	-	-	-	-	0
Gabon	-	Yes	-	-	-	-	-	Yes	-	-	1
Gambia	-	-	-	-	-	-	Yes	-	-	Yes	0
Ghana	-	-	-	-	-	-	Yes	-	-	Yes	0
Guinea	-	-	-	-	-	-	Yes	-	-	Yes	0
Guinea-Bissau	Yes	-	-	-	-	-	-	-	-	Yes	1
Kenya	-	-	Yes	-	-	Yes	-	-	-	-	1
Lesotho	-	-	-	Yes	Yes	-	-	-	Yes	-	1
Liberia	-	-	-	-	-	-	-	-	-	Yes	0
Madagascar	-	-	-	-	-	Yes	-	-	Yes	-	0
Malawi	-	-	-	-	-	Yes	-	-	Yes	-	0
Mali	Yes	-	-	-	-	-	-	-	-	Yes	1
Mauritania	-	-	-	-	-	-	-	-	-	-	0
Mauritius	-	-	-	-	-	Yes	-	-	Yes	-	0
Mayotte	-	-	-	-	-	-	-	-	-	-	0
Mozambique	-	-	-	-	-	-	-	-	Yes	-	0
Namibia	-	-	-	Yes	Yes	-	-	-	Yes	-	1
Niger	Yes	-	-	-	-	-	-	-	-	Yes	1
Nigeria	-	-	-	-	-	-	Yes	-	-	Yes	0
Rwanda	-	-	(Yes)	-	-	Yes	-	-	-	-	1
STP	-	-	-	-	-	-	-	Yes	-	-	0
Senegal	Yes	-	-	-	-	-	-	-	-	Yes	1
Seychelles	-	-	-	-	-	Yes	-	-	Yes	-	0
Sierra Leone	-	-	-	-	-	-	Yes	-	-	Yes	0
Somalia	-	-	-	-	-	-	-	-	-	-	0
South Africa	-	-	-	Yes	Yes	-	-	-	Yes	-	1
Sudan	-	-	-	-	-	Yes	-	-	-	-	0
Swaziland	-	-	-	Yes	Yes	Yes	-	-	Yes	-	1
Tanzania	-	-	Yes	-	-	-	-	-	Yes	-	1
Togo	Yes	-	-	-	-	-	-	-	-	Yes	1
Uganda	-	-	Yes	-	-	Yes	-	-	-	-	1
Zambia	-	-	-	-	-	Yes	-	-	Yes	-	0
Zimbabwe	-	-	-	-	-	Yes	-	-	Yes	-	0

Notes: (Yes) indicates membership in RECs after 2004.

Source: Based on Metzger (2008); Gurtner (1999); Yehoue (2007); Zafar and Kubota (2003); Wang *et al.* (2007); East African Community (1999); La France au Botswana (2010); SADC (2005); Hansohm *et al.* (2005); World Bank (2010b)