

# **What Determines Trade Liberalization in Banking Services under the WTO?**

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This paper investigates the determinants of trade liberalization in banking services under the WTO. The estimated results point out that an increase in per capita GDP, an increase in lending to private sector, a decrease in corruption, an increase in legal system power, an increase in government effectiveness, an increase in regulatory quality, and an increase in rule of law, altogether contribute to the greater degree of liberalization in banking services commitments. In contrast, countries with membership in the Cairns Group, an increase in financial trade openness, an increase in stock traded value, and an increase in restricting bank's activities in nonfinancial firms, insurance, real estate, and securities, entirely play a role in determining a lower level of banking services commitments.

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## 1. Introduction

Numerous studies have devoted to the determinants of nations' trade policy regarding trade in goods. However, the question of what influences policy formation of trade in services has received scarce systematic attention. In the framework of the WTO, the negotiations on trade in services cover twelve sectors.<sup>1</sup> Among these sectors, the financial services sector is the largest in the context of the *General Agreement on Trade in Services* (GATS). This services sector includes two major subsectors, the *insurance and insurance-related services* subsector, and the *banking and other financial services* subsector, a highly regulated industry in each country. The aim of this paper is to explore empirically the determinants of liberalization of banking services under the WTO.

The potential gains from liberalization of trade in communications, finance, transport, business, and other services are enormous. For many countries the potential gains are substantially larger than those that could be derived from liberalization of goods trade (Hoekman 2006; Mattoo, Stern, and Zannini 2007). Financial services play a pivotal role in the process of transferring the ownership of products across borders and hedging the risk of international trade flows. The price and quality of such services are crucial components of the transaction costs incurred by traders. Valckx (2004) contended that financial liberalization might be beneficial through obtaining access to a larger pool of international liquidities and also lower and more stable prices of financial products and services. The WTO (2004) indicated that liberalizing the presence of foreign banks can bring competitive pressure to local banks leading to a substantial fall in their overhead costs following the entry of foreign banks. Therefore, liberalizing trade in financial services can improve the effectiveness of domestic financial environment.

Although potential contribution of liberalizing trade in financial services

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<sup>1</sup> The classification of services established by the Group of Negotiations on Services (GNS) is as follows: (1) business services; (2) communication services; (3) construction and related engineering services; (4) distribution services; (5) educational services; (6) environmental services; (7) financial services; (8) health related and social services; (9) tourism and travel related services; (10) recreational, cultural and sporting services; (11) transport services; and (12) other services.

seems to be clear, Adlung and Roy (2005) concluded that only one-third of services sectors have been included in schedules of commitments in the Doha Round, and many entries have been combined with significant limitations on market access and national treatment or with the complete exclusion of particular types of transactions. Besides, relatively few researches have examined what determines the implementation of trade policy in financial services. Harms, Mattoo and Schuknecht (2003, thereafter HMS) detected the determinants of the GATS commitments on financial services and found that membership in negotiating coalition, unionization, financial development, and quality of prudential regulations account for level of commitments in financial services. Valckx (2004) also explored the determinants of commitments in the financial sector and found GDP growth, performance of the banking sector, and other several macroeconomic variables exercise an influence on the openness of commitments undertaken in this sector.

Contrary to HMS (2003) and Valckx (2004), Egger and Lanz (2008) did not focus on a single sector but investigate the determinants of coverage ratio of commitments in all sectors on mode 3 and mode 1. Their study manifests the first attempt to explain the overall level of commitments under the GATS. Their result suggested that large and rich countries, countries that were involved in free trade agreements prior to the GATS, and countries with their trading partners engaging in extensive service liberalization are more inclined to liberalize services than other countries. Based on the work of Egger and Lanz (2008), Roy (2010) also investigated countries' varying levels of market access commitments under the GATS. The finding indicated that countries better endowed with human capital, countries with greater level of democratization, countries that have acceded to the WTO after the Uruguay Round, and countries with greater relative power generally undertake more GATS commitments.

As the literature suggests, countries with more open on trade are expected to interest in financial services liberalization in that without liberalization in financial services sector, more open country is put at a competitive disadvantage in global markets. Nevertheless, such regressions typically find a

moderate positive relationship (see, for example, HMS 2003 and Roy 2010). But this relationship may not reflect an effect of trade openness on GATS commitments. The problem is that trade openness may be endogenous. As proposed by Alesina and Wacziarg (1998), large countries seem to allow more opportunity for internal trade, hence reducing the need for foreign trade. By contrast, small countries favor liberal trade regime because of economical viability. Thus, country size (measured by the logarithm of population) is negatively related to trade openness. Frankel and Romer (1999) also argued that country size is a powerful determinant of trade openness. This paper suggests country size as an instrument for trade openness.

The GATS negotiations on trade in services have gone through two stages. The first stage started in 1994 and continued until 2000, whereas the second stage started in 2001 and extended through 2008. However, HMS (2003), Valckx (2004), Egger and Lanz (2008), and Roy (2010) analyzed the determinants of liberalization of banking services, using data for the WTO commitments in the first stage. A novelty of this paper uses data that combines financial liberalization under the WTO over the two periods 1994-2000 and 2001-2008, which is the most comprehensive one.

The results show that higher income, better banking development, and better government governance and regulation, entirely play a role in determining a higher liberalization level in banking services commitments, whereas countries with membership in the Cairns Group, higher financial trade openness, and better stock market development, altogether contribute to a lower liberalization level in banking services commitments.

The remainder of this paper is structured as follows. Section 2 explains the terminology and features of the GATS commitments, and introduces the methodology of measuring the liberalization index of banking services under the WTO. Section 3 outlines and discusses the econometric model. Section 4 provides the empirical findings. Finally, Section 5 summarizes and draws conclusions.

## 2. Services Negotiations under the GATS

### 2.1 Classification of Commitments

The WTO schedules of commitments contain two types of commitments, *horizontal* and *specific* commitments, where the former denotes a given set of restrictions pertaining to a specific sector, and the latter denotes a given set of restrictions that apply across the sectors. As suggested by Hoekman (1995, 1996), the *specific* commitments largely determine the effect of the WTO commitments. The kernel of the WTO schedules of commitments is related to the *specific* commitments that are made by the WTO members. The *specific* commitments apply only to those service sectors/sub-sectors or activities that are included in a member's schedule, reflecting a positive list with regard for determining sectoral coverage. These are then only subject to whatever listed qualifications or conditions, reflecting a negative list for maintaining of measures. In addition to the *specific* commitments, the WTO members also submit the *horizontal* commitments, which consolidate laws and policies that restrict the use of a certain mode of supply, independent of the sector involved.

The GATS identifies the *specific* commitments into two types of limitations, listed as follows: (1) limitations on market access (MA), determining whether foreign services and services suppliers are assured of the right to enter the domestic market; (2) limitations on national treatment (NT), determining whether foreign services and services suppliers are treated no less favorable than that accorded to like domestic services and services suppliers.

Commitments promised by each country on either market access or national treatment for a particular mode of supply or activity can be classified into three categories: (1) *unbound*, implying that no commitments are made on either market access or national treatment for a particular mode of supply or activity; (2) *bound*, implying that specific restrictions are listed in either market access or national treatment for a particular mode of supply or activity; and (3) *none*, implying that no restrictions apply on either market access or national treatment for a given mode of supply or activity.

The GATS also distinguishes supply of trade in services from foreign suppliers into four possible modes, which are particularized as follows: (1) cross-border supply (mode 1), indicating that foreign services suppliers and domestic consumers still stay in their own domestic territory respectively and proceed to trade via the Internet or through other electronic tools, such as facsimiles; (2) consumption abroad (mode 2), indicating that foreign services suppliers stay in their own domestic territory, while domestic consumers move into the territory of suppliers and proceed to trade there; (3) commercial presence (mode 3), indicating that domestic services consumers stay in their own domestic territory, while foreign suppliers move into the territory of consumers and proceed to trade there through the commercial presence; and (4) the movement/presence of natural persons (mode 4), indicating that domestic services consumers stay in their own domestic territory, while foreign suppliers move into the territory of consumers and proceed to trade there through the presence of natural persons. One example of financial services in mode 1 is buying overseas mutual funds via the Internet. Buying insurance in a foreign country when a person travels abroad is an example of mode 2. The worldwide Citi-Group branch establishments would be a typical case for mode 3. Sending intra-corporate transferees to one specific branch is an instance of mode 4. Basically, mode 1, mode 2, and mode 4 are all different forms of cross-border trade, whereas mode 3 generally involves foreign direct investment in the services-importing economy.

## ***2.2 Features of Commitments***

The WTO schedules of commitments are legally binding for all members, judged as the minimum limit of trade policy, and believed to be stable and transparent. This is because the WTO will initiate strict dispute settlement procedures whenever disobedience of the commitments by a certain member hinders another member's benefits. Tamirisa et al. (2000) suggested viewing the commitments as an approach of signaling a country's seriousness to potential foreign investors. Roy (2010) argued that the value of commitments rests in that they provide a legal guarantee of a minimum level of access, which is not to be reversed in the future, and which is subject to independent

dispute settlement.

The precise level of openness of commitments is difficult to measure given the wide variety of restrictions that can be scheduled, the lack of consistency in the way governments characterize the restrictions, and the fact that some limitations are sector-specific while others apply to all sectors (Adlung and Roy 2005). Roy (2010) stated that the lack of commitments in a sector does not mean that the sector is in practice closed to foreign services and suppliers, but rather that there is no legal guarantee of a minimum level of treatment under the WTO. Therefore, the GATS commitments do not necessarily reflect the applied level of openness. On the other hand, Barth et al. (2010) made an attempt to compare the WTO commitments on financial services with actual regulatory practice. Their study found that developed countries are less open in practice than their WTO commitments oblige them to be, while developing countries are more open in practice than their WTO commitments.

Eschenbach and Hoekman (2006) found wide discrepancies across 16 transition economies in Europe and Central Asia based on the GATS commitments and actual policies, and an inverse relationship between the level of the GATS commitment and the quality of actual policy. Some transition countries can be explained by the fact that the prospect of EU accession makes the GATS less relevant as a credibility purpose. However, some non-EU accession candidate countries can be explained by the small size of the markets, because no WTO member has much of an incentive to bring a dispute settlement case.

By comparing the commitments undertaken in preferential trade agreements PTAs with the GATS commitments, Roy, Marchetti, and Lim (2007) found that the result tends to confirm the relatively limited breadth and depth of commitments in the GATS, and suggested either that the GATS schedules did not reflect the applied regime or that the improved commitments in the PTAs induced actual liberalization.

### ***2.3 Measuring Liberalization of Commitments***

Hoekman (1995, 1996) provided a seminal study to assess the degree of liberalization of trade in services using three numerical indicators to quantify commitments into three categories: 1 in all instances where *none* is stated; 0.5 in all instances where *bound* is stated; 0 in all instances where *unbound* is stated. The higher the number is, the greater the degree of liberalization of trade in services is. Hoekman (1995, 1996) also argued that scaling *unbound* as 0, and scaling *bound* as 0.5 reflects a perception that scheduling and binding has value, no matter how restrictive the policies that are maintained. Mattoo (1998, 2000) constructed a financial liberalization index of commitments using a specific weighting scheme based on U.S. data, to consider the importance of different modes of supply. Mattoo adopted a slightly more sophisticated approach, based on first recognizing the most restrictive measures in a particular mode of supply or activity, and then applying a value according to an a prior assessment of its restrictiveness, regardless of other less restrictive measures. Qian (2000) and Valckx (2002) utilized the same method suggested by Mattoo (1998, 2000). On the other hand, other researchers have presented the level of financial liberalization in a slightly distinct way. Kono et al. (1997), and Sorsa (1997) displayed summary tables identifying which restrictive measures apply in each country. The WTO (1998) exhibited a summary list indicating which countries make commitments in financial services. Adlung and Roy (2005) provided an overview of specific commitments under the GATS in the Doha Round.<sup>2</sup>

The liberalization index of banking services in this study is measured according to activities listed in the *Annex on Financial Services*, which classifies twelve activities into the *banking and other financial services* subsector.<sup>3</sup> Wang, Shen, and Liang (2008, thereafter WSL) described the

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<sup>2</sup> In this regard, Hoekman (2006) and Francois and Hoekman (2010) have provided comprehensive surveys.

<sup>3</sup> Twelve activities are as follows: (1) Acceptance of deposits and other repayable funds from the public; (2) Lending of all types, including consumer credit, mortgage credit, factoring and financing of commercial transaction; (3) Financial leasing; (4) All payment and money transmission services, including credit, charge and debit cards, travellers cheques and bankers drafts; (5) Guarantees and commitments (6) Trading for own account or for account of customers, whether on an exchange, in an over-the-counter market or otherwise, the following: (i) money market instruments (including cheques, bills, certificates of deposits), (ii) foreign exchange, (iii) derivative products including, but not limited to, futures and options, (iv) exchange rate and interest rate instruments, including



method of assessing the liberalizing content of the WTO commitments. Appendix A gives a detailed description of the measurement. WSL (2008) commenced to reform the previously produced financial liberalization index in three respects. First, and most importantly, their measurement attempted to score different degrees of liberalization in partial commitments further on mode 1 to mode 3. Second, their evaluation covered four modes of supply on trade in services and all the activities listed in the *Annex on Financial Services*. Finally, their calculation distributed weights to four modes of supply by following Mattoo's (1998, 2000) method.

First, partial commitments are assessed more deeply. Due to the difficulty in judging how the presence of specific restrictions is to be evaluated, Hoekman (1995, 1996) assigned scores of 0.5 for each partial commitment. Although this method has its merits in that it is simple and straightforward, the information resulting from different degrees of liberalization has been lost. Mattoo (1998, 2000) adopted a slightly more sophisticated approach, but only handles the partial commitments in relation to mode 3 by this approach. Qian (2000) and Valckx (2002) also utilized the same kind of Mattoo's method. WSL (2008) scored partial commitments by a continuous function  $0.5^n$  proposed by the WTO (2005), where superscript  $n$  denotes the number of scheduled restrictions in a particular mode of supply or activity. The formula is based on two considerations. First, each limitation on market access or national treatment is an additional burden for foreign services suppliers. Therefore, an accurate and reliable methodology has to allow barriers to trade for every scheduled limitation to be tracked. Second, it is assumed that the marginal burden that falls on the foreign services suppliers due to an

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products such as swaps, forward rate agreements, (v) transferable securities, (vi) other negotiable instruments and financial assets, including bullion; (7) Participation in issues of all kinds of securities, including underwriting and placement as agent (whether publicly or privately) and provision of services related to such issues; (8) Money broking; (9) Asset management, such as cash or portfolio management, all forms of collective investment management, pension fund management, custodial, depository and trust services; (10) Settlement and clearing services for financial assets, including securities, derivative products, and other negotiable instruments; (11) Provision and transfer of financial information, and financial data processing and related software by suppliers of other financial services; (12) Advisory, intermediation and other auxiliary financial services on all the activities listed in (1) through (11), including credit reference and analysis, investment and portfolio research and advice, advice on acquisitions and on corporate restructuring and strategy.

additional limitation is decreasing.

Second, liberalization index consists of four modes of supply on trade in services. Except for Hoekman (1995, 1996), Mattoo (1998, 2000), Qian (2000) and Valckx (2002) did not take mode 4 into account. The criteria for scoring the liberalization index for mode 4 are depicted in WSL (2008), where higher scores denote higher degrees of liberalization. In addition, WSL's (2008) measurement takes account of all the activities covered in the *Annex on Financial Services*. By contrast, Mattoo (1998, 2000), Qian (2000), and Valckx (2002) merely focused on certain activities.

Third, the revision concerns the distribution of weights to four modes of supply. Previous studies often use simple average to compute a composite liberalization index due to the absence of precise trade data based on different modes. By considering that commitments to a particular mode of supply with heavier amounts of trade should be assigned more weight, WSL (2008) followed Mattoo's (1998, 2000) method to adopt the data from the United States. These data exhibit that trade through mode 3 is three and a half times greater than trade through mode 1 in the banking services. Under the GATS, commitments to mode 1 oblige a country to allow the necessary capital movements, while those to mode 2 do not. Therefore, commitments of mode 1 have greater value than mode 2. However, Mattoo (1998, 2000) does not consist of mode 4 and contains only parts of the activities. The distribution of weights among four modes are described in WSL (2008).

The following reveals the comparison of the liberalization index between preceding measurements and the method developed by WSL (2008). Hoekman's (1995, 1996) method advantageously contains all activities, all types of limitations, and all modes of supply, but loses information from different degrees of limitations. By contrast, Mattoo's (1998, 2000) method advantageously captures information from different degrees of limitations, but only covers partial activities, partial types of limitations, and partial modes of supply. To sum up, WSL's (2008) methodology endeavors to merge both advantages, and wipes out the disadvantages.

### 3. Econometric Model

This section is concerned chiefly with whether there are any methodical elements that may have influenced the commitments of banking services submitted by the WTO members during the two rounds of negotiations, 1994-2000 and 2001-2008.

The model is specified as follows.

$$\begin{aligned} COMMIT\_BANK_{it} = & \beta_0 + \beta_1 CAIRNS + \beta_2 MFA + \beta_3 LOGPCGDP \\ & + \beta_4 FIN\_TRADE + \beta_5 LENDING + \beta_6 STOCKTRA \quad (1) \\ & + \beta_7 STDINFLA + \beta_8 GOV / REGU + \varepsilon_{it}, \end{aligned}$$

where  $i$  and  $t$  denote the  $i$ th country at time  $t$ , and  $\varepsilon$  is an error term. The dependent variable,  $COMMIT\_BANK$ , is the liberalization index of banking services defined in Section 2.  $CAIRNS$  and  $MFA$  denote the group of bargaining coalition,  $LOGPCGDP$  denotes the wealth of countries,  $FIN\_TRADE$  denotes financial trade openness,  $LENDING$  and  $STOCKTRA$  denote financial market depth,  $STDINFLA$  denotes macro volatility, and  $GOV/REGU$  denotes governance and regulation.

#### 3.1 Bargaining Coalition

Grossman and Helpman (1995) suggested that an opportunity to exchange concessions across industries in the next bargaining round might induce a country to keep current protection. HMS (2003) claimed that countries with high protection in their areas of export interest and sufficient negotiating leverage have the incentives to forego current gains for receiving larger future gains in the multi-sector negotiations. Using the data estimated by Finger and Schuknecht (2001),<sup>4</sup> HMS (2003) detected that agriculture and textiles/clothing sector faced a particularly high level of protection. Nevertheless, a small country that maintains its own protection for their non-interest industry would not be a sufficient bargaining chip for future negotiations. Hoekman and Kostecki (2001) contended that successfully

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<sup>4</sup> After the Uruguay Round, the average tariff rates for all WTO members on agricultural products were 14 percent and 10 percent on textiles/clothing, compared to 4 percent for all other manufactures.

forming coalitions by small countries could be an effective way to increase negotiating leverage. The Cairns Group and the countries facing quantitative restrictions on their textiles/clothing exports under the *Multi-Fibre Agreement* (MFA) were the attractively successful coalitions in the WTO.

The Cairns Group accounts for over 25 per cent of the world's agricultural exports, and is engaged in achieving free and fair trade in agriculture that provides real and sustainable benefits for the developing world. The Cairns Group successfully forced agriculture onto the agenda of the Uruguay Round, eventually leading to the *Agreement on Agriculture*. The Cairns Group also negotiated effectively during the Doha Round to reach agreement on the *Framework on Agriculture* that will guide the final phase of agriculture negotiations.

The MFA was established in 1974 as a temporary measure to provide developed countries with time and space to adapt to the increasing competition from developing countries in the importation of textiles and clothing. The MFA developed restraint mechanisms through establishing quota restrictions on specific textiles and clothing items. One of the major accomplishments of the Uruguay Round was the *Agreement on Textiles and Clothing* (ATC) which replaced the MFA and set out a process to integrate trade in textiles and clothing into the framework of GATT.<sup>5</sup>

The group of bargaining coalition is proxied by two variables. First, *CAIRNS* is a dummy variable and equal to 1 if a country holds membership in the Cairns Group.<sup>6</sup> Second, *MFA* is a dummy variable and equal to 1 if a country's textile/clothing exports is constrained by quantitative restrictions under the MFA.<sup>7</sup> This paper expects that these two groups of bargaining

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<sup>5</sup> The MFA restrictions were phased out over a 10-year period and were scheduled to end in January 2005. The MFA phase-out comprises two parts: a four-stage process eliminating export restraints, and an increase in quota growth rates for products still under restriction during the transition period.

<sup>6</sup> In alphabetical order, Cairns Group is composed of Argentina, Australia, Bolivia, Brazil, Canada, Chile, Colombia, Costa Rica, Guatemala, Indonesia, Malaysia, New Zealand, Pakistan, Paraguay, Peru, the Philippines, South Africa, Thailand, and Uruguay.

<sup>7</sup> In alphabetical order, the countries experienced their textiles/clothing exports constrained by MFA is composed of Bahrain, Brazil, Bulgaria, Colombia, Costa Rica, Czech Republic, Dominican Republic, Egypt, El Salvador, Haiti, Hong Kong, Hungary, India, Indonesia, Jamaica, Kenya, Korea, Kuwait, Macao, Malaysia, Mauritius, Mexico, Pakistan, the Philippines, Poland, Romania, Singapore,

coalition have negative effect on the financial trade liberalization index.

### ***3.2 Wealth of Countries***

Markusen, Rutherford, and Tarr (2005), Markusen (2006), and Markusen and Strand (2007) investigated the consequence of service trade and investment liberalization policy in a general equilibrium model with an industrialized (skilled-labor-abundant) and a developing (unskilled-labor-abundant) country. Since the developing country lacks the complementary know-how factor, which only the industrialized country is endowed with, skilled labor is initially cheap there. Liberalization then implies that multinational firms move their firm-specific know-how to the developing country. Their simulation results indicated that developing country typically gain more from trade and investment liberalization. Therefore, small and poor countries seem to be keener on liberalizing their barriers to trade and foreign commercial presence in the service sector.

However, Egger and Lanz (2008) found that large and rich countries seem to be keener on liberalizing their barriers to trade in the service sector. Possible explanation may be that large countries can more easily concede to their negotiating partners than small countries so as to obtain a desired commitment. Hence, large countries tend to commit to more extensive service liberalization than small countries, because access gains can surpass domestic protectionist pressure more easily in large countries than small countries. Eschenbach and Hoekman (2006) argued that small or poor countries may have weak incentives to enforce the WTO commitments, for the reason that foreign services providers may perceive the net return of initiating disputes or invoking WTO disciplines to be inadequate.

Roy (2010) indicated that relative power or economic size can be expected to impact on trade commitments for a number of reasons. One explanation is concerned with relative gains in the context of multilateral trade negotiations. Cooperation in undertaking commitments is regarded as a cost

because it requires providing greater guarantees of access to one's own market. Each country's original intention is to take as less commitments as possible and let other countries take more. However, opposition from other countries may reduce free-riding. Powerful countries possess greater relative gains from free-riding and provoke other countries to claim that powerful countries promise to undertake consequent commitments. Powerful countries undertaking few commitments would be considered as beneficial from the access granted by others countries and would pose concerns for other countries. Therefore, the greater the power of a country is, the less the ability to free-ride. In other words, the more powerful or economically important countries would take more commitments. Another explanation relates to the role of greater power in initiating the GATS regime. Powerful countries would exploit greater influence on the definition of the GATS key obligations, which can be expected to reflect domestic regimes prevailing in these countries. Then powerful countries will be easier to undertake more commitments. Therefore, countries with greater power would take more commitments.

The wealth of countries is proxied by *LOGPCGDP*, which is the logarithm of per capita GDP. *LOGPCGDP* is taken from the *World Development Indicators* (WDI) published by the World Bank. This paper expects that the higher the income level in per capita GDP, the higher the financial trade liberalization index.

### ***3.3 Financial Trade Openness***

HMS (2003) proposed that trade openness, which is exports and imports as a share of GDP, may account for the possibility that trade-oriented countries in general are more interested in financial services liberalization. Because without liberalization in financial services sector, more open country is put at a competitive disadvantage in global markets. Roy (2010) argued that countries with more open or more dependent on trade are expected to take more commitments.

However, the correlation coefficient (0.126) between financial trade liberalization index and financial trade openness (exports and imports of financial services as a share of GDP) is higher than the correlation coefficient

(-0.012) between financial trade liberalization index and trade openness. This paper suggests that financial trade openness may be a better proxy for a country's magnitude of financial trade orientation than trade openness. The financial trade openness is proxied by *FIN\_TRADE*, which is the sum of exports and imports of insurance and financial services as a share of GDP. The coverage of insurance and financial services is based on the fifth edition of the *Balance of Payments Manual*.<sup>8 9</sup> *FIN\_TRADE* is taken from the *World Development Indicators* (WDI) published by the World Bank.<sup>10</sup> This paper expects that the higher the financial trade openness, the higher the financial trade liberalization index.

### ***3.4 Financial Market Depth***

Countries with underdeveloped financial markets may be prone to introduce foreign financial institutions through foreign direct investment (mode 3) to help develop their domestic financial sectors, while countries with well developed financial markets may be willing to make it convenient for domestic residents and firms to contact foreign cross-border services (mode 1 and mode 2). However, Demirgüç-Kunt and Detragiache (2001) found that financial liberalization has a very large and statistically significant effect on the probability of banking crisis. Tornell, Westermann, and Martinez (2004) showed that financial liberalization leads to more rapid growth by accelerating financial deepening and easing financial constraints, but also to financial fragility and credit risk by lifting restrictions. The relationship between financial development and liberalization index may be blurred.

Financial market depth comprises development of banking sector and capital sector. Banking development variable (or referred to as the depth of the

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<sup>8</sup> Insurance services contains the provision of insurance to nonresidents by resident insurance enterprises, and vice versa. Such services cover freight insurance, other types of direct insurance, reinsurance, and agent commissions related to insurance transactions.

<sup>9</sup> Financial services consists of financial intermediary and auxiliary services (except those of insurance enterprises and pension funds) conducted between residents and nonresidents. Such services include intermediary service fees, commissions and other fees related to transactions in securities, commissions of commodity futures traders, and services related to asset management, financial market operational and regulatory services, security custody services, etc.

<sup>10</sup> The trade data originates from the *Balance of Payments Statistics*, published by the International Monetary Fund

banking industry) is proxied by *LENDING*, which is the ratio of claims on the private sector by banks to GDP.<sup>1112</sup> Stock market development variable (or referred to as the depth of the equity market) is proxied by *STOCKTRA*, which is the ratio of total stock traded value to GDP.<sup>1314</sup> The financial market development variables, *LENDING* and *STOCKTRA*, are taken from Beck, Demirgüç-Kunt, and Levine (2000). This paper has no hypothesis on the sign of these two variables.

### ***3.5 Macro Volatility***

The WTO (2004) suggested that inflation generates unstable and unpredictable prices which will distort investment decisions. High rates of inflation may lead to a flight of capital from uncertain assets to safer markets. Inflation also lowers the competitiveness of domestic firms vis-à-vis foreign firms. Inflation then will encourage imports and discourage exports, that is, the trade balance will tend to deteriorate. As a result, inflation can induce more protection from foreign competition because the existing protection is decayed by rising domestic prices. On the other hand, HMS (2003) claimed that the liberalization level may associate with macroeconomic stability, however, the relationship is not unambiguous, depending on whether a government treats financial liberalization as an “antidote” or “toxicant” to other policies.

Volatility of the macroeconomic environment is proxied by *STDINFLA*, which is the standard deviation of inflation rate. *STDINFLA* is taken from the *World Development Indicators* (WDI) published by the World Bank. This paper expects that the higher the standard deviation of inflation rate, the lower the financial trade liberalization index.

### ***3.6 Governance and Regulation***

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<sup>11</sup> Levine and Zervos (1998) proposed that claims on the private sector by banks to GDP improve traditional financial depth measures of banking development both by isolating the credit issued by banks, as opposed to the credit issued by the central bank or other financial intermediaries, and by indentifying credit to the private sector, as opposed to the credit issued to government.

<sup>12</sup> De Gregorio and Guidotti (1995), Levine and Zervos (1998), and Shen and Lee (2006) have used *LENDING* to proxy the depth of banking industry.

<sup>13</sup> Demirgüç-Kunt and Levine (1996b) indicated that *STOCKTRA* generally be referred to the ability to easily buy and sell securities, that is, a measure of liquidity.

<sup>14</sup> Demirgüç-Kunt and Levine (1996a), and Levine and Zervos (1998), Rousseau and Wachtel (2000), and Shen and Lee(2006) have used these variables as proxies for the depth of stock market.



The WTO (2004) suggested that liberalization will lead to a more complex and diversified financial market, this would need to be safeguarded by strengthening the regulation and supervision. Sufficient prudential regulation is pre-condition for macroeconomic stability. Hoekman and Mattoo (2007) mentioned that developing countries often fall short of adequate domestic regulation in service and might decide to not make a commitment because regulators may be worried that liberalization will hinder their ability to design and enforce domestic regulatory standards. Without actions to address regulatory weaknesses, countries may not fully realize the potential benefits from liberalization.

Hoekman, Mattoo, and Sapir (2007) indicated that the GATS commitments raise three types of concerns for regulators: potentially excessive intrusiveness; inherent unpredictability as regards the implications of commitments; and worries regarding the ability to put in place complementary measures to achieve regulatory and social objectives. Therefore, they regarded that regulatory concerns explain why little progress has been made to liberalize trade in services through the WTO. Roy (2010) argued that regulatory capacity can be associated with a government's capacity to develop and enforce rules to tackle changing situations. In the context of services trade, regulatory capacity means: better ability to assess the impact and implications of services commitments; and greater capacity to assess regulatory responses and to enforce complementary measures.

Government governance is proxied by six variables. First, corruption, *CORRUPTION*, assesses corruption within the political system. Second, law and order, *LAWORDER*, assesses the strength and impartiality of the legal system, as well as the popular observance of the law. The preceding two variables range from 0 to 6, with a higher value indicating lower political risk. Third, bureaucracy quality, *BUREAUCRACY*, measures the extent to which bureaucracy has the strength and expertise to govern a country. The variable ranges from 0 to 4, with a higher value indicating lower political risk. Fourth, government effectiveness, *GOVEFF*, measures the quality of public services, the quality of the civil service, the quality of implementation, and the

credibility of the government's commitment to such policies. Fifth, regulatory quality, *REGUQUAL*, measures the ability of the government to formulate and implement sound policies and regulations. Finally, rule of law, *RULELAW*, measures the quality of contract enforcement, the police, and the courts, as well as the likelihood of crime and violence. The preceding three indicators lies between -2.5 and 2.5, with a higher value corresponding to better governance.

Regulatory restriction on banking activities is proxied by four variables. *RESTRI\_NF* measures the extent to which banks may own and control nonfinancial firms. *RESTRI\_I* measures the extent to which banks may engage in insurance underwriting and selling. *RESTRI\_R* measures the extent to which banks may engage in real estate investment, development, and management. *RESTRI\_S* measures the extent to which banks may engage in underwriting, brokering and dealing in securities, and all aspects of the mutual fund industry. The four indices described above are the regulatory restrictiveness for banks' activities, ranging from 1 to 4, where 1 represents that activities is unrestricted, 2 is permitted, 3 is restricted, and 4 is prohibited.

Concerning the government governance variables, *CORRUPTION*, *LAWORDER*, and *BUREAUCRACY* are taken from the *International Country Risk Guide* (ICRG) published by the Political Risk Services. *GOVEFF*, *REGUQUAL*, and *RULELAW* are taken from Kaufmann, Kraay, and Mastruzzi (2005). The regulatory restriction variables, *RESTRI\_NF*, *RESTRI\_I*, *RESTRI\_R*, and *RESTRI\_S*, are taken from Barth, Caprio, and Levine (2006). This paper expects that the higher the quality of government governance and the condition of regulation, the higher the financial trade liberalization index.

#### **4. Empirical Results**

Sample selection is founded on those WTO members that have submitted updated schedules of commitments during the second round of negotiations, regardless of those members that have submitted schedules during the first round, but not during the second round. Although liberalization indices in

WSL (2008) include ninety-five countries, it may be difficult to collect the corresponding explanatory variables. Therefore, the maximum feasible sample is seventy-five countries according to the variables contained in the regression. The list of countries and the descriptive statistics of variables in this study are provided, respectively, in Tables B1, B2, and B3 in Appendix B.

Besides, the GATS requires that in pursuance of the objectives of this Agreement, members shall enter into successive rounds of negotiations, beginning not later than five years from the date of entry into force of the WTO Agreement and periodically thereafter, with a view to achieving a progressively higher level of liberalization (Article XIX). On the basis of the principle of progressive liberalization, this study presumes that the dependent variable, *COMMIT\_BANK*, would vary from the first round of negotiations to the second round. Therefore, the sample covers the negotiations on trade in services under the WTO over the period 1994-2000 and 2001-2008.

Table 1 presents the estimated results of Equation (1) using the ordinary least square method (OLS). The independent variables emerge with the expected sign as revealed in Section 3, though not always with significant coefficients. The most robust variables in this regards are the per capita GDP, *LOGPCGDP*, which is significantly positive for seven out of ten specifications. This indicates that the higher the wealth of countries, the higher the financial trade liberalization index. The coefficients of government governance and regulatory restriction variables are statistically significant for seven out of ten specifications. This reflects that the higher the quality of government governance and the condition of regulation, the higher the financial trade liberalization index. Unexpectedly, such regressions find a moderate positive relationship between financial trade openness and financial trade liberalization. The problems is that trade openness may be endogenous.

inserting [Table 1 near here]

As argued by Alesina and Wacziarg (1998), as the world becomes more

and more populated by small countries, a liberal trade regime will be more and more favorable, for the reason that small countries need trade to be economically viable. That is to say, large countries do seem to allow more opportunity for internal trade, hence reducing the need for foreign trade. Therefore, country size (measured by the logarithm of population) is negatively related to trade openness (measured by the share of imports and exports over GDP). Dowrick and Golley (2004), Guttman and Richards (2006), and Ram (2009) also supported this evidence. In addition, Frankel and Romer (1999) suggested that countries' geographic characteristics, which include country size, distance, and area, can be used to obtain instrumental variables estimates of trade's impact on income. As the literature demonstrates, country size is a powerful determinant of trade openness. And as can be shown in this paper, the same is true for financial trade openness. The interpretation is that country size is not affected by its financial trade liberalization index, or by government policies and other factors that influence financial trade liberalization index. More generally, it is difficult to think of reasons that country size could have important effects on its financial trade liberalization index except through its impact on financial trade openness. Thus, country size can be used to construct an instrument for financial trade. Country size is proxied by *LOGPOP*, which is the logarithm of population. Table 2 presents the relationship between population (*LOGPOP*) and financial trade openness (*FIN\_TRADE*). Population is very significantly negative related to financial trade openness, even when a wide range of controls are included in the regression. Furthermore, this result is not sensitive to the specifications.

inserting [Table 2 near here]

Table 3 reports the estimated results of Equation (1) using the instrumental variables estimates (IV). The financial trade openness is treated as endogenous, and the log of population (*LOGPOP*) is used as an instrument. The coefficients of financial trade openness, *FIN\_TRADE*, are significantly negative regardless of specification, reflecting that countries with higher

financial trade openness are not willing to liberalize banking services. This counter-intuitive result is particularly surprising since other studies have typically found a positive nexus between trade openness and financial trade liberalization index. However, as mentioned by Valckx (2004), this negative effect on financial services commitments may come through the level of protectionism and inefficiency in domestic financial service sectors. If a country approves high liberalization level in financial services trade, this may incur serious problems for the local financial services suppliers that are in a weaker position than their presumably more efficient international competitors.

inserting [Table 3 near here]

The coefficients of the first bargaining coalition, *CAIRNS*, are found overwhelmingly significantly negative regardless of specification, suggesting that countries with membership in the Cairns Group tend to show a lower liberalization level in banking services. Therefore, the chance of receiving larger gains from multi-sector negotiations in the future induces the Cairns Group members to protect their non-interest export industry. That is, those countries agree on less liberal commitments in banking services for the present. Results of this study are consistent with the findings in HMS (2003) who found that members of the Cairns Group commit to less liberalization. By contrast, the coefficients of the second bargaining coalition, *MFA*, are found statistically insignificantly negative, indicating that countries whose textiles/clothing exports are constrained by quotas under the MFA are not inclined to choose commitments that are more limited in banking services. This result may reflect the fact that the *Agreement on Textiles and Clothing* (ATC) replaced MFA in 2005, and therefore the power of this bargaining coalition weakened gradually.

The coefficients of wealth of countries, *LOGPCGDP*, are overwhelmingly significantly positive regardless of specification, meaning

that higher per capita GDP seems to stimulate countries to implement greater commitments in banking services. This result can be based on three reasons. First, because rich countries can concede to negotiating partners more easily than poor countries, their access gains can go beyond domestic protectionism. Rich countries seem to be keener on liberalizing their barriers to trade in the service sector. Second, because rich countries providing less guarantees of access would stimulate other countries to force them to undertake more commitments, they are able to free-ride as less as possible. Rich countries would choose a greater degree of liberalization. Third, because rich countries can have greater power to influence the GATS regime, they are prone to execute the GATS disciplines. Rich countries would agree on more liberal commitments. Results of this study are consistent with the findings in Valckx (2004), Eschenbach and Hoekman (2006), Egger and Lanz (2008), and Roy (2010) who found that rich countries have strong incentives to choose a greater degree of liberalization.

The coefficients of banking development, *LENDING*, are overwhelmingly significantly positive regardless of specification, indicating that increasing lending to the private sector tends to encourage countries to engage more in the liberalization process in banking services. These results are consistent with the findings in HMS (2003) who found that banking development is positively correlated with financial liberalization index. As suggested by HMS (2003), these results imply that a government treats financial liberalization as an “antidote” to banking development. In contrast to the positive impact from the banking sector, the coefficients of stock market development, *STOCKTRA*, are overwhelmingly significantly negative regardless of specification, implying that increasing stock traded value inclines to assume more liberal commitments in banking services. As suggested by HMS (2003), these results imply that a government treats financial liberalization as a “toxicant” to stock market development. However, the impacts of financial market depth are relatively muted. The coefficients of macro volatility, *STDINFLA*, are entirely negative, but only significant for two specifications. The significantly negative coefficients imply that the standard deviation of inflation rate has a negative effect on approval to a greater degree of liberalization in banking

services. However, the effect of macroeconomic instability is tiny. These results are consistent with the findings in HMS (2003) and the WTO (2004) who found that inflation is negatively correlated with financial liberalization index. As suggested by HMS (2003), these results imply that a government treats financial liberalization as a “toxicant” to macro volatility.

The coefficients of government governance, *CORRUPTION*, *LAWORDER*, *GOVEFF*, *REGUQUAL*, and *RULELAW*, are all significantly positive. These imply that a lower degree of corruption, a more powerful legal system, a higher degree of government effectiveness, a higher degree of regulatory quality, and a higher quality of rule of law stimulate countries to implement higher commitments in banking services. The coefficients of regulatory restriction on bank’s activities, *RESTRI\_NF*, *RESTRI\_I*, *RESTRI\_R*, and *RESTRI\_S*, are all significantly negative. These suggest that countries whose banks are restricted to participate in nonfinancial firms, insurance, real estate, and securities are accustomed to assume a smaller degree of liberalization in banking services. Therefore, good government governance and regulatory restriction can enable government to possess ability to implement and respond the GATS commitments. Results of this study are consistent with the findings in HMS (2003), Valckx (2004), The WTO (2004), Hoekman and Mattoo (2007), Hoekman, Mattoo, and Sapir (2007), and Roy (2010) who found that countries with higher quality of government governance and condition of regulation tend to adopt higher GATS commitments. As suggested by HMS (2003), these results imply that a government treats financial trade liberalization as an “antidote” to government governance and regulatory restriction.

Not surprising, using more information in constructing the instrument increases the precision of the determinants of the GATS commitments. The coefficient of *FIN\_TRADE* rises sharply. That is, the IV estimates suggest that examining the link between financial trade openness and liberalization of the GATS commitments using OLS understates rather than overstates the effect of financial trade openness. The IV estimates of other independent variables are much larger than the OLS estimates, and are marginally significantly different

from zero.

## **5. Conclusions**

Analyzing the determinants of the GATS commitments is more complex than goods because the analysis considers the multiple modes of supply and maps this to the comparative advantage of countries (Francois and Hoekman 2010). It is also important to distinguish predictions regarding preferences for applied trade policies from the GATS commitments. The theory predictions regarding determinants of trade policy preferences pertain to applied policies, so it is not surprised that they do not properly explain the GATS commitments (Francois and Hoekman 2010). This paper provides new empirical evidence on the determinants of a country's level of commitments in banking services under the WTO. Although there are few researches on the determinants of trade liberalization in banking services under the WTO, to the best of our knowledge, there is no empirical study merging two runs negotiations on trade in financial services under the WTO over the two periods 1994-2000 and 2001-2008.

The following summarizes our empirical results in five respects. First, countries with membership in the Cairns Group tend to show a lower liberalization level in banking services. Second, higher per capita GDP seems to stimulate countries to implement higher commitments in banking services. Third, countries higher financial trade openness choose a lower degree of liberalization in banking services. Fourth, countries with higher lending to private sector tend to adopt higher commitments levels in banking services, whereas countries with higher stock traded value incline to choose more limited commitments in banking services. Fifth, lower degree of corruption, more powerful legal system, higher degree of government effectiveness, higher degree of regulatory quality, and higher quality of rule of law play a role in the determination of a higher liberalization level in banking services commitments. Finally, more restrictive bank's activities in nonfinancial firms, insurance, real estate, and securities contribute to the explanation of a lower level of banking services commitments.





## Appendix A

Since there are limitations on market access/national treatment and four modes of supply, each activity contains eight entries for calculation. Since the *banking and other financial services* subsector includes twelve activities, each member's schedule of commitments covers ninety-six entries for assessment.

The liberalization index in each activity,  $L_i$ , is defined as:

$$L_i = \left( \sum_{j=1}^4 w^j MA_i^j + \sum_{j=1}^4 w^j NT_i^j \right) / 2, \quad (\text{A1})$$

where the superscript  $j$  denotes the mode of supply, the subscript  $i$  denotes the activity listed in the *Annex on Financial Services* with twelve activities belonging to the banking subsector,  $w^j$  is the weight of mode  $j$  (mode 1 is 0.24, mode 2 is 0.06, mode 3 is 0.6, and mode 4 is 0.1),  $MA_i^j$  is the numerical value to quantify the commitments made on market access under mode  $j$  in activity  $i$ , and  $NT_i^j$  is the numerical value to quantify the commitments made on national treatment under mode  $j$  in activity  $i$ . Because it is very difficult to judge the importance between market access and national treatment, the liberalization index in each activity as pointed out by Equation (A1) is calculated by simple average of the modal weighted average of market access and national treatment.

The liberalization index of banking services in each country,  $COMMIT\_BANK$ , is defined as:

$$COMMIT\_BANK = \sum_{B=1}^{12} L_B / 12. \quad (\text{A2})$$

where the subscript  $B$  denotes the activity belonging to the banking subsector. Because it is very difficult to gather the trade data by twelve activities to judge the importance between them, the liberalization index of banking services as pointed out by Equation (A2) is calculated by simple average of the liberalization index in twelve banking activities.

## Appendix B

Table B1. Countries in the sample

Argentina	Guatemala	New Zealand
Australia	Guyana	Norway
Austria	Hong Kong	Oman
Bahrain	Hungary	Pakistan
Barbados	Iceland	Panama
Belgium	Indonesia	Paraguay
Bolivia	India	Peru
Brazil	Ireland	Philippines
Bulgaria	Israel	Poland
Canada	Italy	Portugal
Chile	Jamaica	Singapore
China	Japan	Slovak Republic
Colombia	Jordan	Slovenia
Costa Rica	Kenya	South Africa
Croatia	Korea	Spain
Cyprus	Latvia	Sri Lanka
Czech Republic	Lithuania	Sweden
Egypt	Luxembourg	Switzerland
El Salvador	Macedonia	Thailand
Estonia	Malaysia	Trinidad and Tobago
Fiji	Malta	Tunisia
Finland	Mauritius	Turkey
France	Mexico	United Kingdom
Germany	Morocco	United States
Greece	Netherlands	Uruguay

Table B2. Summary statistics

	Mean	Std.	Min.	Max.
COMMIT_BANK	0.535	0.280	0.000	0.975
CAIRNS	0.247	0.433	0.000	1.000
MFA	0.347	0.478	0.000	1.000
LOGPCGDP	3.772	0.533	2.607	4.712
FIN_TRADE	2.541	10.612	0.119	107.428
LENDING	58.381	38.012	11.116	166.690
STOCKTRA	30.966	44.648	0.004	202.258
STDINFLA	11.508	70.494	0.287	778.388
CORRUPTION	3.462	1.165	1.000	6.000
LAWORDER	4.429	1.288	1.000	6.000
BUREAUCRACY	2.906	0.835	1.000	4.000
GOVEFF	0.708	0.891	-1.068	2.403
REGUQUAL	0.687	0.651	-0.774	1.895
RULELAW	0.586	0.905	-1.102	2.172
RESTRI_NF	2.426	0.804	1.000	4.000
RESTRI_I	2.591	0.854	1.000	4.000
RESTRI_R	2.723	1.116	1.000	4.000
RESTRI_S	1.737	0.710	1.000	4.000

Table B3. Correlation matrix

	CAIRNS	MFA	LOGPCGDP	FIN_TRADE	LENDING	STOCKTRA	STDINFLA	CORRUPTION	LAWORDER	BUREAUCRACY	GOVEFF	REGUQUAL	RULELAW	RESTRI_NF	RESTRI_I	RESTRI_R	RESTRI_S
CAIRNS	1																
MFA	-0.016	1															
LOGPCGDP	-0.232	-0.438	1														
FIN_TRADE	-0.098	-0.088	0.239	1													
LENDING	-0.108	-0.422	0.579	0.177	1												
STOCKTRA	-0.104	-0.145	0.504	-0.081	0.550	1											
STDINFLA	0.188	0.269	-0.137	-0.043	-0.196	-0.108	1										
CORRUPTION	-0.132	-0.354	0.729	0.208	0.573	0.517	-0.124	1									
LAWORDER	-0.266	-0.447	0.742	0.186	0.627	0.445	-0.276	0.712	1								
BUREAUCRACY	-0.211	-0.306	0.823	0.192	0.625	0.553	-0.195	0.797	0.758	1							
GOVEFF	-0.157	-0.437	0.889	0.223	0.711	0.616	-0.215	0.853	0.845	0.897	1						
REGUQUAL	-0.162	-0.400	0.863	0.247	0.587	0.480	-0.178	0.830	0.730	0.785	0.921	1					
RULELAW	-0.217	-0.431	0.878	0.215	0.689	0.571	-0.209	0.851	0.881	0.874	0.976	0.903	1				
RESTRI_NF	0.149	0.099	-0.163	-0.089	-0.073	-0.056	0.059	-0.131	-0.189	-0.253	-0.216	-0.185	-0.189	1			
RESTRI_I	-0.213	0.224	-0.323	-0.063	-0.297	-0.222	0.033	-0.383	-0.204	-0.264	-0.384	-0.435	-0.338	0.131	1		
RESTRI_R	0.023	0.266	-0.447	-0.222	-0.419	-0.274	0.074	-0.535	-0.367	-0.543	-0.509	-0.521	-0.471	0.399	0.481	1	
RESTRI_S	0.064	0.068	-0.223	-0.160	-0.318	-0.126	0.028	-0.416	-0.403	-0.289	-0.378	-0.399	-0.424	0.354	0.259	0.374	1

## References

- [1] R. Adlung, and M. Roy, "Turning Hills into Mountains? Current Commitments under the General Agreement on Trade in Services and Prospects for Change," *Journal of World Trade*, vol.39, 2005, pp.1161-1194.
- [2] A. Alesina, and R. Wacziarg, "Openness, Country Size and Government," *Journal of Public Economics*, vol.69, 1998, pp.305-321.
- [3] J. Barth, G. Caprio Jr., and R. Levine, "*Rethinking Bank Regulation: Till Angels Govern*," Cambridge University Press, 2006.
- [4] J. Barth, J. Marchetti, D. Nolle, and W. Sawangngoenyuan, "WTO Commitments vs. Reported Practices on Foreign Bank Entry and Regulation: A Cross-Country Analysis," in: A. Berger, P. Molyneux, and J. Wilson, eds., *Oxford Handbook in Banking*, Oxford University Press, 2010, pp.430-459.
- [5] T. Beck, A. Demirgüç-Kunt, and R. Levine, "A New Database on Financial Development and Structure," *World Bank Economic Review*, vol.14, 2000, pp.597-605.
- [6] J. De Gregorio, and P. E. Guidotti, "Financial Development and Economic Growth," *World Development*, vol.23, 1995, pp.433-448.
- [7] A. Demirgüç-Kunt, and E. Detragiache, "Financial Liberalization and Financial Fragility," in: G. Caprio, P. Honohan, and J. E. Stiglitz, eds., *Financial Liberalization: How Far, How Fast?* Cambridge University Press, 2001, pp.96-124.
- [8] A. Demirgüç-Kunt, and R. Levine, "Stock Market, Corporate Finance, and Economic Growth: An Overview," *World Bank Economic Review*, vol.10, 1996a, pp.223-239.
- [9] A. Demirgüç-Kunt, and R. Levine, "Stock Market Development and Financial Intermediaries: Stylized Facts," *World Bank Economic Review*, vol.10, 1996b, pp.291-321.
- [10] S. Dowrick, and J. Golley, "Trade Openness and Growth: Who Benefits?" *Oxford Review of Economic Policy*, vol.20, 2004, pp.38-56.
- [11] P. Egger, and R. Lanz, "The Determinants of GATS Commitment Coverage," *World Economy*, vol.31, 2008, pp.1666-1694.
- [12] F. Eschenbach, and B. Hoekman, "Services Policies in Transition Economies: On the EU and WTO as Commitment Mechanisms," *World Trade Review*, vol.5, 2006, pp.415-443.
- [13] J. Francois, and B. Hoekman, "Services Trade and Policy," *Journal of Economic Literature*, vol.48, 2010, pp.642-692.
- [14] J. A. Frankel, and D. Romer, "Does Trade Cause Growth?" *American Economic Review*, vol.89, 1999, pp.379-399.
- [15] J. M. Finger, and L. Schuknecht, "Market Access Advances and Retreats: The Uruguay Round and Beyond," in: B. Hoekman and W. Martin, eds., *Developing Countries and the WTO: A Pro-Active Agenda*, Blackwell,

- 2001, pp.251-308.
- [16] G. M. Grossman, and E. Helpman, "Trade Wars and Trade Talks," *Journal of Political Economy*, vol.103, 1995, pp.675-708.
- [17] S. Guttman, and A. Richards, "Trade Openness: An Australian perspective", *Australian Economic Papers*, vol.45, 2006, pp.188-203.
- [18] P. Harms, A. Mattoo, and L. Schuknecht, "Explaining Liberalization Commitments in Financial Services Trade," *Review of World Economics*, vol.139, 2003, pp.82-113.
- [19] B. Hoekman, and M. Kostecki, *The Political Economy of the World Trading System: The WTO and Beyond*, Oxford University Press, 2001.
- [20] B. Hoekman, "Tentative First Step: An Assessment of the Uruguay Round Agreement on Services," Policy Research Working Paper no. 1455, World Bank, 1995.
- [21] B. Hoekman, "Assessing the General Agreement on Trade in Services," in: W. Martin and L. A. Winters, eds., *The Uruguay Round and the Developing Countries*, Cambridge University Press, 1996, pp.88-124.
- [22] B. Hoekman, "Liberalizing Trade in Services: A Survey," Policy Research Working Paper no.4030, World Bank, 2006.
- [23] B. Hoekman, and A. Mattoo, "Regulatory Cooperation, Aid for Trade and the GATS," *Pacific Economic Review*, vol.12, 2007, pp.399-418.
- [24] B. Hoekman, A. Mattoo, and A. Sapir, "The Political Economy of Services Trade Liberalization: A Case for International Regulatory Cooperation?" *Oxford Review of Economic Policy*, vol.23, 2007, pp.367-391.
- [25] International Monetary Fund, *Balance of Payments Manual*, fifth edition, International Monetary Fund, 1993.
- [26] D. Kaufmann, A. Kraay, and M. Mastruzzi, "Governance Matters IV: Governance Indicators for 1996-2004," Draft, World Bank, 2005.
- [27] M. Kono, P. Low, M. Luanga, A. Mattoo, M. Oshikawa, and L. Schuknecht, "Opening Markets in Financial Services and the Role of the GATS," WTO Special Studies No.1, World Trade Organization, 1997.
- [28] R. Levine, and S. Zervos, "Stock Market, Banks and Economic Growth," *American Economic Review*, vol.88, 1998, pp. 537-558.
- [29] J. R. Markusen, "Modeling the Offshoring of White-collar Services: From Comparative Advantage to the New Theories of Trade and FDI," in: S. L. Brainard and S. Collins, eds., *Brookings Trade Forum 2005: Offshoring White-collar Work*, Brookings Institution, 2006, pp.1-34.
- [30] J. R. Markusen, and B. Strand, "Trade in Business Services in General Equilibrium," NBER Working Paper no. 12816, National Bureau of Economic Research, 2007.
- [31] J. R. Markusen, T. F. Rutherford, and D. Tarr, "Trade and Direct Investment in Producer Services and the Domestic Market for Expertise," *Canadian Journal of Economics*, vol.38, 2005, pp.758-777.

- [32] A. Mattoo, "Financial Services and the WTO: Liberalization in the Developing and Transition Economies," Staff Working Paper TISD9803, World Trade Organization, 1998.
- [33] A. Mattoo, "Financial Services and the WTO: Liberalization Commitments of the Developing and Transition Economies," *World Economy*, vol.23, 2000, pp.351-386.
- [34] A. Mattoo, R. M. Stern, and G. Zannini, *A Handbook on International Trade in Services*, Oxford University Press, 2007.
- [35] Y. Qian, "Financial Services Liberalization and GATS," in: S. Claessens and M. Jansen, eds., *The Internationalization of Financial Services: Issues and Lessons for Developing Countries*, Kluwer Law International, 2000, pp.63-101.
- [36] R. Ram, "Openness, Country Size, and Government Size: Additional Evidence from a Large Cross-country Panel," *Journal of Public Economics*, vol.93, 2009, pp.213-218.
- [37] P. L. Rousseau, and P. Wachtel, "Equity Markets and Growth: Cross Country Evidence on Timing and Outcomes, 1980-95," *Journal of Banking and Finance*, vol.24, 2000, pp.1933-1957.
- [38] M. Roy, "Endowments, Power, and Democracy: Political Economy of Multilateral Commitments on Trade in Services," World Trade Organization Economic Research and Statistics Division Staff Working Paper 2010-11, 2010.
- [39] M. Roy, J. A. Marchetti, and H. Lim, "Services Liberalization in the New Generation of Preferential Trade Agreements (PTAs): How Much Further Than the GATS?" *World Trade Review*, vol.6, 2007, pp.155-192.
- [40] C. H. Shen, and C. C. Lee, "Same Financial Development yet Different Economic Growth - Why?" *Journal of Money, Credit, and Banking*, vol.38, 2006, pp.1907-1944.
- [41] P. Sorsa, "The GATS Agreement on Financial Services - A Modest Start to Multilateral Liberalization," IMF Working Paper WP/97/55, International Monetary Fund, 1997.
- [42] N. Tamirisa, P. Sorsa, G. Bannister, B. McDonald, and J. Wieczorek, "Trade Policy in Financial Services," IMF Working Paper WP/00/31, International Monetary Fund, 2000.
- [43] A. Tornell, F. Westermann, and L. Martinez, "The Positive Link between Financial Liberalization Growth and Crises," NBER Working Paper no. 10293, National Bureau of Economic Research, 2004.
- [44] N. Valckx, "WTO Financial Services Liberalization: Measurement, Choice and Impact on Financial Stability," Research Memorandum Wo no. 705, De Nederlandsche Bank, 2002.
- [45] N. Valckx, "WTO financial services commitments: Determinants and impact on financial stability," *International Review of Financial Analysis*, vol.13, 2004, pp. 517-541.
- [46] L. R. Wang, C. H. Shen, and C. Y. Liang, "Financial Liberalization under



the WTO and Its Relationship with the Macro Economy,” in: T. Ito and A. K. Rose, eds., *International Financial Issues in the Pacific Rim: Global Imbalances, Financial Liberalization, and Exchange Rate Policy*, NBER-EASE Volume 17, University of Chicago Press, 2008, pp.315-341.

- [47] WTO, “Financial Services: Background Note by the Secretariat,” S/C/W/72, World Trade Organization, 1998.
- [48] WTO, *World Trade Report 2004: Exploring the Linkage between the Domestic Policy Environment and International Trade*, World Trade Organization, 2004.
- [49] WTO, “Communication from Switzerland: Methodology to Access Schedules of Commitments under the GATS,” TN/S/W/51, World Trade Organization, 2005.

Table 1. Determinants of the liberalization index of banking services: OLS estimates

Independent Variables	1	2	3	4	5	6	7	8	9	10
CONSTANT	-0.126 (-0.761)	-0.175 (-1.054)	-0.071 (-0.410)	0.090 (0.314)	0.134 (0.545)	0.175 (0.645)	0.181 (0.970)	0.092 (0.494)	0.146 (0.831)	0.290 (1.540)
CAIRNS	-0.068 (-1.631)	-0.040 (-0.874)	-0.056 (-1.362)	-0.056 (-1.360)	-0.053 (-1.253)	-0.042 (-0.990)	-0.071* (-1.772)	-0.107** (-2.420)	-0.064 (-1.633)	-0.063 (-1.519)
MFA	-0.074 (-1.520)	-0.056 (-1.109)	-0.081* (-1.725)	-0.057 (-1.219)	-0.061 (-1.317)	-0.053 (-1.128)	-0.054 (-1.138)	-0.066 (-1.338)	-0.045 (-0.938)	-0.076 (-1.597)
LOGPCGDP	0.169*** (3.186)	0.150*** (3.014)	0.125** (2.049)	0.115 (1.422)	0.092 (1.272)	0.089 (1.161)	0.171*** (3.740)	0.178*** (3.985)	0.170*** (4.022)	0.152*** (3.467)
FIN_TRADE	0.001 (1.585)	0.001* (1.692)	0.001* (1.675)	0.001 (0.875)	0.000 (0.397)	0.001 (0.671)	0.001** (1.969)	0.000 (0.452)	0.000 (0.189)	0.001 (0.831)
LENDING	0.000 (0.312)	-0.000 (-0.048)	0.000 (0.059)	0.000 (0.070)	0.000 (0.260)	0.000 (0.093)	0.000 (0.288)	0.000 (0.232)	-0.000 (-0.040)	-0.000 (-0.712)
STOCKTRA	-0.000 (-0.250)	-0.000 (-0.171)	-0.000 (-0.278)	-0.000 (-0.327)	-0.000 (-0.102)	-0.000 (-0.101)	-0.000 (-0.792)	-0.000 (-0.502)	-0.000 (-0.583)	0.000 (0.139)
STDINFLA	-0.000 (-0.883)	-0.000 (-0.575)	-0.000 (-0.727)	0.000 (0.146)	-0.000 (-0.132)	-0.000 (-0.076)	-0.000 (-0.731)	-0.000 (-0.679)	-0.000 (-1.269)	-0.000 (-0.977)
CORRUPTION	0.019 (0.886)									
LAWORDER		0.042* (1.757)								
BUREAUCRACY			0.065 (1.579)							
GOVEFF				0.070 (1.308)						
REGUQUAL					0.112* (1.775)					
RULELAW						0.084* (1.711)				
RESTRI_NF							-0.095*** (-4.355)			
RESTRI_I								-0.062** (-2.516)		
RESTRI_R									-0.069*** (-3.648)	
RESTRI_S										-0.133*** (-4.707)
R <sup>2</sup>	0.275	0.289	0.285	0.255	0.254	0.249	0.326	0.281	0.316	0.349
Obs.	138	138	138	145	146	146	132	133	133	133

Notes: Numbers in parentheses are t-statistics that are based on White's consistent standard errors; \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

Table 2. Population and financial trade openness

Independent Variables	1	2	3	4	5	6	7	8	9	10
CONSTANT	2.535 (0.400)	2.839 (0.461)	4.652 (0.716)	4.789 (0.666)	3.134 (0.569)	0.525 (0.071)	-1.310 (-0.150)	8.530 (1.316)	5.696 (1.009)	2.327 (0.366)
LOGPOP	-2.475** (-2.203)	-2.547** (-2.082)	-2.647** (-2.080)	-2.362** (-2.284)	-2.291** (-2.434)	-2.396** (-2.414)	-2.528** (-2.029)	-2.522** (-2.020)	-2.455** (-2.038)	-2.479** (-2.012)
CAIRNS	-0.317 (-0.428)	-0.242 (-0.314)	-0.161 (-0.218)	-0.241 (-0.325)	-0.289 (-0.390)	-0.233 (-0.322)	-0.098 (-0.117)	-1.215 (-1.038)	0.040 (0.043)	-0.015 (-0.017)
MFA	2.129* (1.809)	2.139* (1.831)	2.065* (1.850)	1.876* (1.817)	1.746* (1.803)	1.840* (1.775)	1.940* (1.902)	2.053* (1.868)	2.461* (1.856)	2.045* (1.829)
LOGPCGDP	3.777 (1.568)	3.933 (1.451)	3.255 (1.262)	3.099 (1.204)	3.400 (1.432)	4.409 (1.463)	4.764 (1.496)	3.948 (1.568)	4.114 (1.511)	4.456 (1.478)
LENDING	0.057* (1.686)	0.057* (1.669)	0.056 (1.640)	0.052 (1.586)	0.053* (1.687)	0.057* (1.648)	0.055* (1.710)	0.055* (1.706)	0.051 (1.628)	0.052 (1.592)
STOCKTRA	-0.054 (-1.329)	-0.053 (-1.358)	-0.052 (-1.355)	-0.054 (-1.362)	-0.054 (-1.333)	-0.052 (-1.336)	-0.051 (-1.393)	-0.056 (-1.398)	-0.055 (-1.378)	-0.052 (-1.363)
STDINFLA	0.001 (0.516)	0.001 (0.702)	0.001 (0.832)	0.002 (1.182)	0.001 (0.962)	0.001 (0.939)	0.001 (0.917)	0.002 (0.899)	0.001 (0.479)	0.001 (0.606)
CORRUPTION	0.249 (0.404)									
LAWORDER		0.100 (0.288)								
BUREAUCRACY			0.686 (0.815)							
GOVEFF				0.927 (0.810)						
REGUQUAL					0.948 (0.686)					
RULELAW						-0.168 (-0.202)				
RESTRI_NF							0.566 (0.591)			
RESTRI_I								-1.952 (-1.221)		
RESTRI_R									-1.309 (-1.483)	
RESTRI_S										-0.742 (-1.125)
R <sup>2</sup>	0.137	0.136	0.137	0.137	0.139	0.138	0.141	0.158	0.154	0.141
Obs.	138	138	138	145	146	146	132	133	133	133

Notes: Numbers in parentheses are t-statistics that are based on White's consistent standard errors; \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.

Table 3. Determinants of the liberalization index of banking services: IV estimates

Independent Variables	1	2	3	4	5	6	7	8	9	10
CONSTANT	-1.046*** (-3.435)	-1.013*** (-3.365)	-0.861*** (-2.741)	-0.735** (-2.176)	-0.833*** (-2.750)	-0.912** (-2.515)	-0.658** (-1.961)	-0.410 (-1.601)	-0.456 (-1.633)	-0.511* (-1.814)
CAIRNS	-0.112*** (-2.818)	-0.081* (-1.909)	-0.096** (-2.386)	-0.110*** (-2.746)	-0.124*** (-2.954)	-0.100** (-2.428)	-0.104** (-2.557)	-0.182*** (-3.910)	-0.096** (-2.506)	-0.098** (-2.469)
MFA	0.008 (0.135)	0.011 (0.190)	-0.018 (-0.328)	0.012 (0.224)	0.012 (0.230)	0.019 (0.367)	-0.016 (-0.285)	-0.010 (-0.182)	0.029 (0.501)	-0.012 (-0.228)
LOGPCGDP	0.405*** (5.178)	0.384*** (4.993)	0.351*** (3.906)	0.347*** (3.840)	0.361*** (4.380)	0.397*** (4.060)	0.381*** (4.495)	0.378*** (4.951)	0.379*** (4.676)	0.393*** (5.113)
FIN_TRADE	-0.046*** (-3.657)	-0.041*** (-3.411)	-0.038*** (-3.032)	-0.050*** (-3.912)	-0.062*** (-4.723)	-0.054*** (-4.289)	-0.033*** (-2.793)	-0.037*** (-3.125)	-0.039*** (-3.274)	-0.043*** (-3.777)
LENDING	0.003*** (2.927)	0.002** (2.505)	0.002** (2.218)	0.003*** (2.628)	0.003*** (3.376)	0.003*** (2.948)	0.002** (2.364)	0.002** (2.382)	0.002** (2.341)	0.002** (2.521)
STOCKTRA	-0.004*** (-3.874)	-0.003*** (-3.516)	-0.003*** (-3.210)	-0.004*** (-4.036)	-0.005*** (-4.804)	-0.004*** (-4.343)	-0.003*** (-3.136)	-0.003*** (-3.387)	-0.003*** (-3.403)	-0.003*** (-3.714)
STDINFLA	-0.000* (-1.665)	-0.000 (-1.112)	-0.000 (-0.998)	0.000 (0.262)	-0.000 (-0.139)	-0.000 (-0.310)	-0.000 (-0.927)	-0.000 (-0.515)	-0.000* (-1.729)	-0.000 (-1.360)
CORRUPTION	0.044** (2.260)									
LAWORDER		0.042* (1.892)								
BUREAUCRACY			0.057 (1.619)							
GOVEFF				0.115** (2.399)						
REGUQUAL					0.209*** (3.449)					
RULELAW						0.085* (1.820)				
RESTRI_NF							-0.058*** (-2.737)			
RESTRI_I								-0.134*** (-4.238)		
RESTRI_R									-0.118*** (-5.510)	
RESTRI_S										-0.167*** (-5.404)
R <sup>2</sup>	0.355	0.357	0.346	0.345	0.370	0.352	0.356	0.343	0.375	0.416
Obs.	146	146	146	153	154	154	139	140	140	140

Notes: Numbers in parentheses are t-statistics that are based on White's consistent standard errors; \*, \*\*, and \*\*\* denote significance at the 10%, 5%, and 1% levels, respectively.