Financial Liberalization and Current Account Balance*

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Abstract

The article analyzes the relationship between financial liberalization and the current account balance. It thus attempts to answer the question of how financial market deregulation affects international trade. There are two main arguments in favor of undertaking this research topic. The first concerns the search for answers to the question of the consequences of financial market deregulation for the real economy. The second concerns the identification of the determinants of permanent trade deficits. The impact of financial liberalization on a nation's external balance is a crucial consideration, particularly given recent shifts in global trade policy. The article presents the theoretical channels through which financial liberalization affects trade. The empirical analysis covered 35 countries from 1973 to 2019, primarily OECD countries. As part of the research process, a financial liberalization index covering a wide range of instruments regulating its functioning was used to measure the phenomenon of financial liberalization. The study used comparative analysis and Granger causality analysis (Granger Dumitrescu-Hurlina causality test). An analysis of deregulation episodes in the studied countries revealed that financial liberalization was, on average, followed by an improvement in the current account balance. These findings were corroborated across various time intervals during the period of financial sector reform. Additionally, the research confirmed the presence of Granger causality between the level of financial liberalization and the current account balance. Utilizing the Granger-Dumitrescu-Hurlin causality test, it was demonstrated that financial liberalization serves as a Granger cause for the current account balance. This relationship holds true regardless of the lag order applied in the analysis. Based on the analysis results, it can be concluded that financial liberalization may have a positive impact on the current account balance.

Keywords: financial liberalization, current account balance, trade deficit, financial repression

Introduction

The debate on the impact of finance on the real economy has a long tradition. On the one hand, W. Bagehot (1973, Chapter X) and J. Schumpeter (2017, pp. 84-100) emphasized the positive relationship between the development of the financial sphere and economic growth. On the other hand, R Lucas (1988, pp. 3-42) and J. Robinson (see Maciejczyk-Bujnowicz 2015, p. 148) questioned the importance of finance in stimulating economic activity. This theoretical dispute was reflected in numerous empirical analyses, including the works of G. Aknic, M. Aknic, and Ö. Yilmaz (2014, pp. 33-55), as well as J.B. Ang (2011, p. 688).

A significant contribution to this debate was made by R.I. McKinnon (1973, pp. 89-116) and E.S. Shaw (1973, pp. 112-114), who linked financial market regulation with economic growth in a given country. Their research became the basis for formulating the hypothesis of financial market liberalization. The results of research confirming its validity can be found, among others, in the works of E. Jafarov et al. (2019) and S. Bumann et al. (2013, pp. 259-260). On the other hand, financial market liberalization can lead to certain imbalances in the economy, which can ultimately result in financial crises and, consequently, economic recessions. R.I. McKinnon,

a co-creator of the financial market liberalization hypothesis, identified this problem. Together with H. Pill (McKinnon and Pill, 1994, p.10), they emphasized the importance of financial liberalization in generating the phenomenon of overborrowing. Moreover, in their opinion, deregulation is the basis for the formation of twin crises. Similar conclusions can be drawn from the analysis by G.L. Kaminsky and S.L. Schmukler (2002, p. 2). These authors point to the dual nature of the impact of financial liberalization on real economy variables. First, deregulation can lead to increased instability in the real economy in the short term. G.L. Kaminsky and S.L. Schmukler (2002) used the term "short-run pain" to describe this relationship. Thus, they confirmed the possibility of generating severe currency crises in the wake of financial liberalization. Second, G.L. Kaminsky and S.L. Schmukler (2002) note, however, that in the long run, deregulation—by lowering the cost of capital—will stimulate economic growth.

One of the key channels through which financial liberalization affects the real economy, as noted in the literature on the subject, is its impact on shaping international trade. This aspect has become crucial in the context of the consequences of the Great Financial Crisis of the first decade of the 21st century for the global economy. The crisis highlighted the problems resulting from economic imbalances, prompting research into their structural causes. Hence, questions about the relationship between financial liberalization and the current account balance are of great importance.

The primary objective of the study was to determine whether a relationship exists between financial market liberalization and the current account balance, and to characterize its nature. This study examined the relationship between the level of financial regulation and the development of international trade, using data from 35 countries. The research sample included countries at different levels of economic development. The analysis spans the years 1973 to 2019. The study used measures of financial liberalization found in the literature (including a modified version of the liberalization index by Abiad et al. (2008)). The quantitative study was based on analyses of descriptive statistics and Granger causality.

Financial Liberalization and Current Account – Literature Review

The question of the impact of financial liberalization on a country's external balance is a critical issue, especially in light of current changes in global trade policy. At the same time, it is essential to emphasize that the question of identifying the structural causes of persistent deficits or surpluses in certain countries is not a new one. However, recent changes in the organization of world trade, combined with these imbalances and financial crises, have made this discussion significantly more critical in recent years.

The factors determining the level of the current account balance most frequently mentioned in the literature on the subject include: per capita income, relative growth rates, the fiscal balance, demographic variables, and economic openness (Gruber and Kamin 2006, p. 500). In turn, M.D. Chinn and E.S. Prasad (2000, p. 1), who focused their analysis on the medium term, pointed out that variables such as the budget balance and the initial level of net foreign investment in the economy are positively correlated with the current account balance (net foreign assets). They also noted that in less developed countries, the current account balance is negatively correlated with the level of openness of the economy to international trade (Chinn and Prasad 2000, p. 1). What is essential from the perspective of this analysis, M.D. Chinn and E.S. Prasad found that in the aforementioned group of countries, there was a positive correlation between the current account balance and the size of the financial sector (financial deepening). These results align with the theoretical foundations that link the financial sector to international trade, as formulated by K. Kletzer and P. Bardhan (1987, pp. 57-70). According to their hypothesis, a well-developed financial sector allows for a competitive advantage in sectors of the economy that rely on external financing. This hypothesis has also been confirmed by research by, among others, T. Beck (2003) and J. Hur et al. (2003). Moreover, the analysis by G. Caporale et al. (2022) indicates that the positive impact of financial sector development on export levels is long-lasting and contributes to an increase in value added in industry. The latter conclusions are consistent with the theoretical model developed by J. Greenwood and B. Jovanovic (1990). These authors emphasized the role of the financial system in gathering and analyzing information, which then allows investors to allocate their funds to the most profitable ventures.

The theoretical basis for the relationship between financial market development and the current account, facilitated through financing for the private sector, is justified by concepts linking financial liberalization to economic growth. It is worth referring to the analysis by M.J. Fry (1980, pp. 317-327) here. In his opinion, financial repression limits economic growth in two ways. First, it has a negative impact on the volume of savings and the availability of credit. Secondly, lower credit availability hurts the use of previously accumulated capital

resources. The issue of increased access to foreign capital as a consequence of financial liberalization was also highlighted in a paper by R. Ranciere et al. (2006, p. 3331).

At the same time, the positive relationship between the development of the financial sector and its deregulation, as well as the current account balance, is questioned in the literature. In examining the relationship between financial development and international trade, F. Leibovici (2016) noted that such changes in the financial sector lead to a significant shift in global trade from labor-intensive to capital-intensive industries. However, the effect on a macro scale is small. Furthermore, O. Blanchard and F. Giavazzi (2002, pp. 167-168), in their analysis of the relationship between internal (domestic) financial market deregulation and the current account balance, also reached conclusions different from those of M.D. Chinn and E.S. Prasad (2000). Among the more recent analyses questioning the existence of a positive relationship between the variables studied are publications by A. Lo Prete (2012) and Z.O. Zoričić et al. (2020). The former focused on the experiences of OECD countries. The latter, on the other hand, was limited to Central and Eastern European countries. It should be noted that W. Li et al. (2020) also attribute the source of global imbalances, among other factors, to the reduction of regulations on foreign direct investment flows, which is one area of financial market liberalization.

In the theoretical analysis of the relationship between financial sector deregulation and the current account balance, the issue of the public finance sector balance also plays an important role. The relationship between the trade deficit and the budget deficit is a widely discussed issue in the literature (see Moździerz 2018). The coexistence of both imbalances is referred to as a twin deficit. At the same time, the reduction of financial repression – manifested, among other things, in the marketization of interest rate-setting mechanisms and credit allocation in the economy – makes it more challenging to finance the public sector deficit, thus forcing a more balanced budgetary approach. The existence of a negative relationship between financial repression and the level of public finance sustainability has been noted by E. Jafarov et al. (2020, p. 2). Thus, financial liberalization, by reducing the budget deficit, should contribute to improving the current account balance. An example of a country that employed a policy aimed at financial liberalization to reduce public debt was Israel in the 1980s (Eckstein & Ramot-Nyska, 2008, pp. 290-291). At the same time, however, it is worth noting that the experiences of some countries, such as the United Kingdom in the 1960s, suggest that financial repression, combined with an inflationary shock, can be a crucial element in effective fiscal consolidation.

Methodology

When analyzing the relationship between financial liberalization and the current account balance, it is essential to define these terms in operational terms. In the literature on the subject, empirical analysis has often been limited to liberalization in the area of international capital flows. This approach can be found, for example, in the works of D. Rodrik (1998, pp. 1-16) and A. Gehringer (2013, pp. 291-309). At the same time, however, it does not fully align with the concept of financial liberalization as outlined in the works of R. McKinnon and E.S. Shaw. J. Williamson and M. Mahar (1998, p. 10) note that the process of liberalization understood in this way consists of transferring competence in the area of credit allocation and pricing to market mechanisms. Therefore, they distinguished six areas of financial liberalization, namely:

- The elimination of credit controls,
- The deregulation of interest rates,
- Free entry into the banking sector (the financial service industry),
- Bank autonomy,
- Private ownership of banks,
- Liberalization of international capital flows.

It should therefore be noted that the liberalization of international capital flows is only one dimension of a broader process of financial liberalization. Moreover, as shown by O. Blanchard and F. Giavazzi (2002, pp. 167–168), taking this broader context into account enables a more comprehensive explanation of the relationships that occur in the economy. In the literature on the subject, some researchers have attempted to construct financial liberalization indices that measure the regulation of the entire financial sector and, above all, take into account the fundamental aspects of financial repression. Such analyses can be found, among others, in the following publications: A. Abiad et al. (2004, p. 2), A. Abiad and A. Mody (2005, pp. 65-68), A. Abiada et al. (2008, pp. 14-19), G.L. Kaminsky and S.L. Schmukler (2002, p. 2), O. Bandiera et al. (2000, pp. 239-263), and L. Laeven (2003, pp. 6-7). The work by A. Abiad et al. (2008) includes a financial liberalization index that encompasses all aspects of financial repression identified by J. Williamson and M. Mahar (1998). The analysis by S. Bumann et al. (2013, pp. 259-260) demonstrated that the approach presented by A. Abiad et al. (2008) is characterized by the broadest perspective on the phenomenon of financial repression in the literature on the subject. The broad scope

of this index is the main argument in favor of adopting it as a measure representing the level of financial market regulation in this study. Moreover, this approach is also supported by the fact that it has already been employed in studies on the impact of financial liberalization on real economy variables, as seen in the analysis by B. Cournède and O. Denk (2015, p. 32). At the same time, this study incorporates certain modifications compared to the original proposal by A. Abiad et al. (2008). Firstly, when determining the value of the index, the specific nature of instruments such as window guidance (used during the study period in the Japanese economy (see Fukumoto et al. 2010, p. 5)), "self-disciplining" mechanisms (used during the study period in the Chinese economy (see Gang 2021, pp. 1-15)) and declaration systems (used during the study period in the Norwegian economy (see Krogh 2010, p. 10)). Secondly, based on the arguments presented by P.B. Spahn (1995, p. 11) and C.S. Hakkio (1994, p. 19), it was assumed that a tax rate on financial transactions classified as financial repression should be considered to be above 1% of the tax base. Thirdly, changes in prudential regulation and macroprudential supervision in the wake of the Great Financial Crisis necessitated adjustments to the coding of legislative solutions in this area. Ultimately, the areas taken into account in the calculation of the index were:

- Credit controls and reserve requirement policy
- Interest rate controls
- Entry barriers
- State ownership in the banking sector
- Capital account restrictions
- Securities market
- Banking Sector Supervision

Within each of the areas mentioned above, the country under review was assigned a rating for the degree of financial market regulation in a given year. The ratings ranged from 0 to 3, where 0 meant intense financial repression and 3 meant full financial liberalization[1]. The final level of the aggregate index was equal to the sum of the ratings in each area. Thus, the financial liberalization index ranged from 0 to 21 (see Table 1). In addition, the study also used a binary measure of liberalization—a binary financial liberalization index. Its construction is described in Table 1[2].

Table 1. Financial liberalization measures

Name	Description
Financial liberalization index (*the index*)	The index covers the scope of financial market liberalization in seven areas (each area was rated on a scale of 0-3). The index is an unweighted sum of the ratings for the level of regulation in these areas, ranging from 0 to 21.
Binary financial liberalization index (*FI/FR 0/1*)	The index takes the value zero if the index is less than 15.75; for index values greater than or equal to 15.75, it takes the value 1.

Using the presented method of measuring financial repression, its level was estimated for the years 1973-2019 in 35 countries, namely: Australia, Austria, Belgium, Brazil, Chile, China, the Czech Republic, Denmark, Estonia, Finland, France, Greece, Spain, India, Ireland, Israel, Japan, Canada, South Korea, Mexico, Germany, Norway, New Zealand, Poland, Portugal, South Africa, Russia, Switzerland, Sweden, Turkey, the USA, Hungary, the United Kingdom, and Italy. The total GDP generated in the countries comprising the research group accounts for over 80% of global GDP. The adoption of a nearly 50-year research horizon allows for an accurate assessment of the financial liberalization process that began in the early 1970s. At the same time, it is worth noting that for some countries, the analysis period is shorter due to specific geopolitical conditions and data availability. Thus, the analyzed panel is unbalanced.

Descriptive statistics and Grander causality analysis (1969, pp. 424-438) were used in the analysis of the relationship between financial liberalization and the current account balance. This study used the Granger causality test in the sense of Dumitrescu-Hurlin for panel data (Dumitrescu, Hurlin 2012). This choice was due to the nature of the panel data used in the analysis, including the number of N and T (see Dzewoszewska 2016, p. 211). When estimating the value of the financial liberalization index and then analyzing the relationship between its level and the current account balance, the following were used:

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[1] The Banking Sector Supervision area is characterized by a different coding method (see Abiad 2008)

[2] For the exact method of estimating the index value, see Abiad (2008) and Ślusarczyk (2023)

- databases: World Bank (including Global Financial Development Database), International Monetary Fund (including International Financial Statistics, Exchange Arrangements and Exchange Restrictions, Macroprudential Policy Survey), OECD, Eurostat,
- results of surveys conducted by the World Bank on financial sector regulation (Bank Regulation and Supervision Survey),
- reports prepared as part of the International Monetary Fund's Financial Sector Assessment Program,
- reports on financial market regulation prepared by the Bank for International Settlements in Basel, the World Bank, and the OECD,
- reports by national institutions regulating and supervising the financial sector.

Among the secondary data sources used, the following publications should be noted: A. Abiad et al. (2008) and R. Ślusarczyk (2023).

Research Results

In the first stage of analyzing the relationship between the level of financial liberalization and the current account balance, a comparison was made of the economic situation during the periods immediately preceding and following the introduction of financial sector reform. Table 2 presents the results of the analysis. Before interpreting them, it is essential to clarify that the year of change in the regulatory regime for the financial sector was defined as the period when the binary financial liberalization index reached a value of 1. To offset the impact of cyclical effects on the results, they are presented over periods of 3 to 5 years. Furthermore, due to the nature of the variable under study, the table presents the mean and median values of the current account balance for the individual time intervals analyzed.
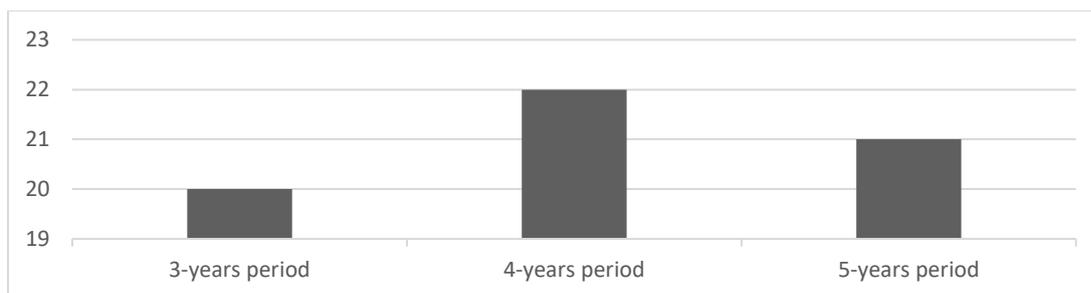
Table 2. Current account balance in the periods before and after the implementation of financial market reforms

Description		Current account, as a share of GDP, median	Current account, as a share of GDP, means
3-years interval	Three preceding years	-1.271	-1.824
	Three following years	-0.915	-1.024
4-years interval	Three preceding years	-1.235	-1.868
	Three following years	-1.229	-0.940
5-years interval	Three preceding years	-1.411	-1.730
	Three following years	-1.226	-0.816

Uwaga: za rok przeprowadzenia reformy przyjęto rok, w którym indeks FI/FR 0/1 zmienił wartość z 0 na 1
Source: Author's estimates.

The results presented in Table 2 show that, regardless of the measure of position and time interval adopted in the analysis, the change in the regulatory regime was associated with an improvement in the current account balance-to-GDP ratio. Considering the improvement in the average current account balance relative to GDP, the results for the four-year time interval are most favorable for financial sector deregulation, with an increase of nearly 0.93 percentage points in the four years following financial liberalization. Moreover, regardless of the time interval adopted, the average improvement in balance following the reforms in the group of countries studied is above 0.8 percentage points. In the case of an analysis based on the median, changes in the current account balance-to-GDP ratio resulting from deregulation are particularly significant over a three-year time interval. In this case, the median value in the group of countries studied in the post-reform period was 0.36 percentage points higher than before the reform.

To supplement the conclusions drawn from the analysis of Table 1, Chart 1 presents a summary of the number of deregulation episodes characterized by an improvement in the current account balance, depending on the period considered. There are 20, 22, and 21 episodes for the three-, four-, and five-year periods of analysis, respectively. Thus, among all episodes characterized by financial sector liberalization, approximately two-thirds were accompanied by an improvement in the current account balance.

Figure 1: Number of episodes characterized by an improvement in the average current account balance in the analyzed group of countries, depending on the time interval adopted

Source: Author's estimates.

The next stage of the study of the relationship between financial liberalization and the formation of the current account balance involved the use of the Granger-Dumitrescu-Hurlin causality test for panel data. The choice of this test is a consequence of the unbalanced nature of panel data. In the adopted test, the null hypothesis concerns the absence of Granger causality between the variables being analyzed. At this stage of the research, the financial liberalization index (index) was adopted as a measure of financial liberalization. When testing Granger causality, it is crucial to determine the order of lags included in the study. As shown by L. Lopez and S. Weber (2017, p. 974), C. Dumitrescu and E. Hurlin (2012) did not specify the procedure for selecting the order of lags used in the causality test, therefore, it is conducted based on empirical experience. Based on the analysis by E. Jafarova et al. (2019) and the results of the previous research stage, a causality test was performed for variable lags of up to four periods.

Before performing the Granger causality test, it is necessary to verify the stationarity of the variables used in the study (Granger and Newbold, 1974, pp. 111-120). For this purpose, the test by G.S. Maddala and S. Wu was used. It is a Fisher-type test (Fisher's procedure of empirical significance level aggregation (Fisher 1932)), which can be used for unbalanced data panels (Strzała 2009, p. 61), allows for different lag lengths in individual non-stationarity tests (Choi 2001, pp. 249-272), and provides for individual effects to be taken into account. In the case of the Maddala-Wu test, the null hypothesis assumes non-stationarity. The test procedure is based on the aggregation of empirical significance levels from ADF tests for individual countries. The Akaike Information Criterion was used in the test statistics estimation procedure (Akaike, 1998, pp. 267-281) to estimate the test statistics. It is worth noting that G. Akinci et al. (2014, pp. 33-55) also employed the Maddala-Wu test in their research on the relationship between financial market development and economic growth. The results of the Maddala-Wu test for the financial liberalization index and the current account balance are presented in Table 3.

Table 3. Panel unit root tests (Maddala-Wu test with individual effects)

Panel unit root tests				
Variable	Mean lag	χ^2 statistic	*p-value*	Rejection of H0**
Index	2.54	279.23	<2.2e-16	Yes
Current account balance	2,08	158.37	8.526e-09	Yes

*Notes: * - AIC was used to determine the value of the delays used; the maximum number of delays accepted in the test is 10; ** - the null hypothesis assumes non-stationarity; "Yes" means rejection of the null hypothesis; "No" means there are no grounds for rejecting the null hypothesis.*

Source: Author's estimates (R Studio)

Based on the results of the Maddala-Wu test, the hypothesis of non-stationarity of the indicated variables should be rejected. The next stage of the study was to conduct Granger causality test. The results are presented in Table 4.

Table 4. Granger causality between the current account balance (CA) and the financial market liberalization index (index)

Y*	X**	Lags	Ztilde statistic	*p-value*	Rejection of H0**
CA	*index*	1	4.6999	2.606e-06	Yes
CA	*index*	2	5.4061	6.44e-08	Yes
CA	*index*	3	3.1531	0.001616	Yes
CA	*index*	4	5.3473	8.927e-08	Yes
CA	*index*	5	3.5426	0.0003962	Yes
Index	CA	1	2.1905	0.02848	Yes
Index	CA	2	0.21123	0.8327	No
Index	CA	3	1.3619	0.1732	No
Index	CA	4	2.1756	0.02959	Yes
Index	CA	5	0.86826	0.3924	No

Notes: Y - variable being an effect in Granger's sense, ** - variable being a cause in Granger's sense, *** - null hypothesis: no causality in Granger's sense between the variables under study; alternative hypothesis: in the case of at least one entity, causality in Granger's sense exists; "Yes" means rejection of the null hypothesis, "No" means no grounds for rejecting the null hypothesis.*

Source: Author's estimates (R Studio)

Table 4 presents the results of Granger Demitrescu-Hurlin causality tests. Several alternative scenarios were adopted in the causality analysis. They differ in terms of the selection of the Granger-causative variable and the order of lags adopted in the test. In the first scenario, the Granger-causing variable is the liberalization index value, and the dependent variable is the current account balance (index → CA). The estimates presented in Table 4 show that, regardless of the order of lags adopted, the null hypothesis that there is no Granger causality between the indicated variables should be rejected. Thus, the alternative hypothesis, according to which the above causality exists, should be accepted. In the second scenario, it was alternatively assumed that causality functions in the opposite direction (index → CA). Based on the results obtained, it is difficult to draw clear conclusions about the existence of the indicated causality (its existence was confirmed only by the results of tests for a lag order of 1 or 4).

Conclusions

The process of financial liberalization and the issue of external balance are essential problems not only in theory but also in economic policy practice. The financial and economic crises of recent decades have made it clear to policymakers in many countries that decisions in these areas are crucial to the functioning of their economies. The financial liberalization that has been ongoing since the 1970s (although limited as a consequence of the Great Financial Crisis) is leading to significant structural changes. One area that may be affected is the current account balance. A review of the literature on the nature of this impact has revealed a lack of consensus on this matter. This applies to both theoretical work and empirical research results. At the same time, it is worth noting that the literature distinguishes between different channels of influence between the variables in question. Undoubtedly, a crucial problem in empirically verifying the hypothesis regarding the consequences of financial liberalization for external balance is the issue of measuring financial liberalization. As the analysis of the literature on the subject has revealed, there are significant differences in the approaches to this problem among individual researchers.

In this study, the process of financial liberalization was measured using the method proposed by Abiad et al. (2008). The technique adopted allowed for the inclusion of a relatively large area of financial market regulation in the analysis. The analysis used data from a large group of countries with varying levels of development. Thus, the results obtained can serve as a basis for formulating universal conclusions about the relationship between financial liberalization and the current account balance. Ultimately, the study was conducted based on a comparative analysis and a Granger causality analysis. The results obtained at each stage of the study are consistent, indicating that financial liberalization leads to an improvement in the current account balance. It is worth noting that the concept of financial liberalization adopted in the study by Abiad et al. (2008) emphasizes the role of prudential regulations and financial market supervision (see the index construction method). In the approach adopted by the authors, the regulatory framework in this area is an essential element of the ongoing liberalization process. The results obtained provide a basis for further research in this area.

Acknowledgement

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