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Financial liberalisation and trade: An examination of moving up value chains in the Asia–Pacific region

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Introduction

Financial liberalisation, also known as domestic financial market development and opening, is, potentially, a fundamental factor in an economy's development and long-term growth. Financial market development and opening influences potential growth by accelerating capital accumulation and increasing economic efficiency through the mobilisation of resources and facilitation of cross-border economic exchange. Well-functioning financial institutions can play a critical role in this process through risk management and closing information gaps, reducing the risks faced by investors by pooling savings and distributing funds among many users. They also collect and evaluate information needed to make prudent and productive investment decisions and improve management and governance by evaluating the performance of borrowers.

The benefits of financial liberalisation in developing economies include a wider choice of financial services, faster economic growth owing to greater competition from foreign firms, access to better service channels (such as credit cards in developing countries), faster access to services and better credit assessment procedures and information-gathering techniques.

However, financial liberalisation also entails risks, especially if governments open their economies—thereby making themselves vulnerable to external shocks—but continue with outdated regulation and supervision of their financial systems. Modernising and strengthening domestic institutions is a priority so that regulators and supervisors are better able to evaluate and manage the risks in a more complex market-oriented system. Striking a balance between stability and efficiency can be difficult. The events of the 1997–98 Asian financial crisis (AFC) made clear the risks of promoting more open capital markets to increase efficiency; in times of crisis, markets would focus on national vulnerabilities and could reverse capital flows, causing costly real economy and banking system stresses. In response, emerging market economies, while continuing to deepen their integration into regional and global markets, began to build buffers against capital flow reversals by accumulating foreign exchange reserves.

Both the AFC and the global financial crisis (GFC) in 2008–09 prompted questions about the links between the performance of financial systems and the real economy in terms of national growth rates, job creation and inclusivity, and cross-border flows of trade and investment. Capital has flowed ever more freely across borders since the last century, as national governments have opened markets and deregulated finance. At the same time, market-based financial innovation and advances in information and communications technology have left national regulators and central bank governors scrambling to catch up. Recent writings by former Bank of England Governor Mervyn King and British economist John Kay, among others, have emphasised the growth of ‘financialisation’, a term applied to the shift in behaviour of financial institutions away from their primary purpose of supporting businesses and households in the real economy towards self-serving interactions among themselves (Kay, 2015; King, 2016). Part of this trend involves financial institutions using mathematical innovations that may be profitable to market participants but, arguably, serve no socially useful purpose. As a result, some, including King, have insisted that the system is broken and needs to be redesigned.

In the post-GFC environment, more than a decade after the AFC, there is concern regarding a ‘new normal’ for global growth, as slow rates of recovery have persisted in advanced countries long after the 2008 onset of the crisis. In Asia, growth rates are healthy but slower than expected. China’s growth is strong but slowing, as its rebalancing strategy proceeds. It is moving away from the investment-driven export growth of the past and reallocating economic activity more towards domestic demand and consumption; it is also modernising its financial system to support the eventual use of the renminbi as a global reserve currency. India has more modest goals and is growing relatively strongly. Even so, the Asian Development Bank (ADB) predicted a possible new normal for potential growth in developing Asia (ADB, 2016), noting that the region’s average potential growth declined by 2.2 percentage points during 2008–14 from its historical trend (and global potential growth dropped by 2.7 points). The ADB estimated that, in the context of China’s strong trade and investment ties within the region, the moderation of growth in China is associated with a 0.5 per cent reduction in potential growth in other Asian economies (ADB, 2016). India is much less connected, although one focus of the Modi government is deepening regional integration.

David Lipton (2016), First Deputy Managing Director of the International Monetary Fund (IMF), has pointed out that, in the face of continued capital market volatility, countries are responding with greater accumulation of reserves and stronger current account positions, which have procyclical effects. He recommended a collective response, involving several elements to support growth and globalisation:

- a reliable financial safety net in which emerging market economies have an equal voice in setting and applying the rules
- collective assessment of supervisory frameworks and tax systems in countries from which capital flows originate to reduce incentives for short-term debt flows to emerging market economies
- reassessment of tax policies with respect to their debt bias
- permission for greater transfer of technology to include property rights protection that goes beyond traditional tariff reductions to open up to foreign direct investment (FDI).

Owing to the magnitude of debts and the roles played by banks in the GFC, there have been concerted efforts to tighten banking rules and reduce the likelihood of future financial crises. At both the Bank for

International Settlements and the Financial Stability Board, regulators from the major economies have taken a number of measures that some critics see as fighting the complexity of the pre-crisis system with more complexity. Banks' capital requirements have been raised and stress tests of bank balance sheets have become more onerous. In addition, banks' liquidity requirements have been increased to strengthen their ability to withstand high demands for liquidity to repay debts or meet depositors' demand in the event of a bank run. Banks designated as systemically significant financial institutions because of the complexity and scale of their operations have been required to produce living wills, or plans for how they would wind up their complex operations in the event of a financial crisis. Resolution mechanisms to enable troubled banks to continue services while they deal with crises or wind up have also been improved. In the US and UK, moves have been made to restore the separation of basic retail banking, which only serves households and businesses, from the more complex trading activities of investment and shadow banking.

Although there is evidence of greater market discipline in the reduced sizes of previously very large banks in the US, UK and Europe, and in the reduction of investment banking operations, more radical plans have also been proposed to ensure financial stability. Moral hazard remains pervasive in the current system, which is backed by central banks as lenders of last resort. King (2016) advocated breaking the banks' links with money creation by preventing central banks from lending to banks without collateral. Among other things, this requirement would force banks to hold more equity on their balance sheets.

This chapter focuses on the links between financial liberalisation and a particular aspect of the real economies in developing Asia, specifically export upgrading, or moving up the value chain. Dependent as the region is on innovation and higher value-added production to assist in raising real incomes, moving up the value chain is a significant goal in many Asia-Pacific economies. The remainder of this chapter is organised as follows. First, we measure and assess financial liberalisation in the region, particularly in China and India, the region's largest markets. Second, we examine empirical evidence for links between financial liberalisation and export upgrading as complementary parts of governments' economic and financial sector reform strategies. Third, we assess the implications of these links.

Financial liberalisation in East Asia

Prior to the AFC, many economies had opened capital accounts, even though their financial systems were bank dominated and their regulatory and legal infrastructures were underdeveloped. In the wake of the AFC, national financial reforms have proceeded apace. ASEAN+3, which consists of the Association of Southeast Asian Nations (ASEAN), the People's Republic of China, Japan and South Korea (i.e. the +3), has created the ASEAN+3 Macroeconomic Research Office as a regional institution that carries out macro-economic surveillance of members. The largest economies in ASEAN+3 are now also members of the Group of Twenty (G20).

The crisis-affected economies have strengthened their domestic financial systems and recognised that their heavy reliance on debt in bank-dominated systems requires the development of more complex, diverse and transparent financial systems that allow savers and investors to interact with confidence with borrowers and issuers who are unknown to them. Capital market institutions, such as Thailand's Securities and Exchange Commission, have been created to diversify the supply of financial instruments that can help withstand external shocks. It has also been acknowledged that governments should rely more on market discipline in financial markets to reduce moral hazards. Requirements on foreign firms seeking market entry in Korea and Thailand have been eased; it is understood that these entrants can help recapitalise weak financial institutions, introduce modern financial instruments and provide management skills and training. Governments have permitted more exchange rate flexibility; both Japan and Korea have flexible exchange rates, although their governments have intervened periodically to influence the values. Malaysia, Indonesia and the Philippines allow their currencies to float. However, India and China lag behind on such reforms.

Among the crisis-affected countries, Korea appears to have made significant progress in restructuring and opening; Hong Kong and Singapore, as international financial centres, are, of course, further advanced. As Park and Patrick (2013) have aptly summarised:

Japan and Korea have learned that financial intermediation is best based on competitive financial markets, control over inflation, macroeconomic stability, and appropriate institutional framework and structure, and effective prudential regulation for institution and system safety. (p. 11)

Measuring financial liberalisation

Documenting the depth and nature of financial liberalisation is no easy task. There is no consensus in the literature on whether *de jure* or *de facto* measures of liberalisation are more useful, and why some measures are more popular. In the discussion that follows, we rely on the dataset of Abiad, Detragiache and Tressel (2008), which offers *de jure* measures of financial reform on several dimensions for a broad panel of countries from 1970 to 2005. Abiad et al.'s dataset is a broad panel of 91 economies with annual observations on a set of financial regulation indicators from 1973 to 2005. It is an attempt to codify existing literature on *de jure* government intervention in financial markets across seven broad areas: 1) regulations on the direction of credit to priority sectors and excessively high reserve requirements of over 20 per cent; 2) interest rates controls, both for deposit and lending rates, including the imposition of rates by fiat and the bands within which interest rates are permitted to fluctuate; 3) barriers to new entrants in the financial system; 4) state ownership of banks; 5) restrictions on capital account transactions, including multiple exchange rates, transaction taxes and outright bans on financial flows, either inward or outward; 6) prudential regulation and supervision, as measured by the Basel I risk-based capital adequacy ratios, the independence of the supervisory agency, the number of institutions exempt from supervision and the effectiveness of examinations of banks; and 7) security market policy.

We also use the World Bank's World Financial Development Database (WFDD), another panel dataset with wide coverage, and the widely used Chinn–Ito index of capital account liberalisation (Chinn & Ito, 2006).

Figure 5.1 summarises the historical relationship between *de jure* financial liberalisation and per capita income in the countries studied, using a simple bivariate regression of the Abiad et al. (2008) aggregate financial reform index on per capita gross domestic product (GDP), estimated separately for each year from 1973 to 2005. The correlation between income and financial liberalisation peaked in the late 1980s and, by 2005, poor countries were beginning to catch up to the richer ones. Significant financial liberalisation occurred in low- and middle-income countries in the 1990s.

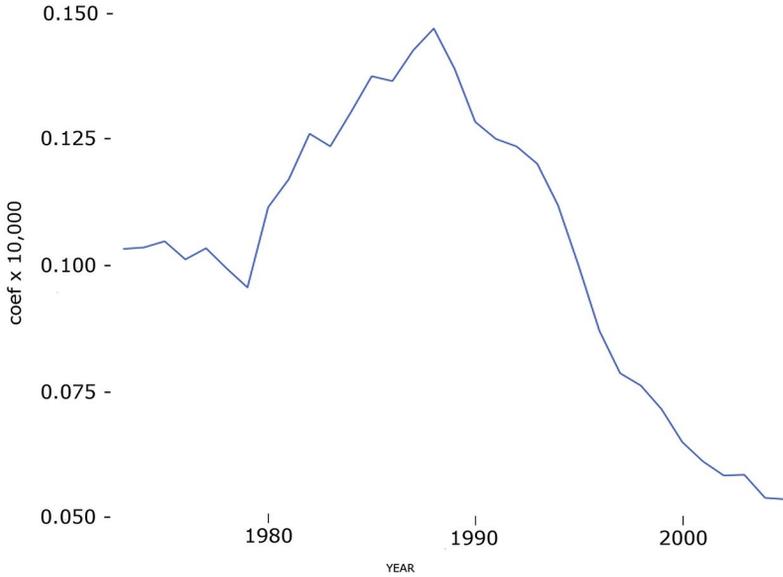


Figure 5.1: Regression coefficients, 1973–2005 (bivariate ordinary least squares regression of financial liberalisation aggregate index on annual per capita income)

Source: See Appendix B.

In Figure 5.2, the evolution of financial deregulation in three of developing Asia's most important economies, China, India and Indonesia, can be observed. In the 1990s, Indonesia was ahead of both China and India on several domestic reform measures. However, it has lagged behind on banking supervision; although not a measure of liberalisation, banking supervision does indicate the maturity of the regulatory environment. China and India had overtaken Indonesia in this area by 2005. Another example of financial reform is the liberalisation of interest rate controls, a key component of reform in Asia. The Abiad et al. (2008) sub-index on interest rate controls varies from zero to four; a value of four indicates that both deposit interest rates and lending interest rates are determined in competitive financial markets, a value of zero indicates that both deposit and lending rates are set by governments and intermediate values indicate partial liberalisation. On this metric, Indonesia's interest rates were fully controlled until 1982, resulting in a score of zero; the same was true of India until 1992 and China until 2002.

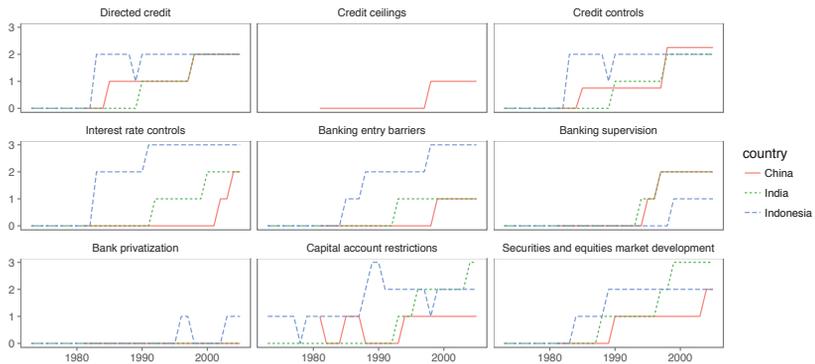


Figure 5.2: Indices of financial liberalisation, selected countries (1972–2005)

Source: Compiled by authors using data from Abiad et al. (2008).

China and India

A more detailed analysis of financial systems in China and India indicates that more financial liberalisation and market opening lies ahead. The Chinese financial system remains largely state-controlled, but renminbi internationalisation has become a high-profile rationale for modernising and opening the economy. Government policy and administrative guidance is extensive, and directed lending was heavily used in the depths of the GFC to offset the effects of external volatility and uncertainty. Since then, bad loans have been piling up on banks' books. China's overall debt/GDP ratio is estimated to be 237 per cent. The IMF, which estimates corporate debt/GDP at 145 per cent, has raised concerns about a possible financial crisis (Wildau, 2016). There are many possible scenarios that could result, ranging from bank failures that paralyse credit markets, to a Japanese-style malaise caused by distressed borrowers whose reduced appetites for risk-taking and investment reduce growth.

A structural concern is the fact that banks are accustomed to the riskless income generated by the generous spread between deposit and lending rates and many lack the expertise needed to manage risk. Banks' main depositors are household savers, who receive low returns and, in the absence of efficient bond and equity markets, have few other savings vehicles beyond housing investments. Many banks have wealthy customers engaged in shadow banking transactions that do not appear

on their balance sheets. These transactions include informal lending and off-balance sheet lending by non-bank financial institutions, including trust companies, informal lenders and bond trading outside the banks.

Some have argued that these concerns are overstated because the debt build-up is mostly held within China, where the savings rate is very high (Lardy, 2016). One estimate is that loans plus banks' off-balance sheet assets are roughly equal to deposits. The required reserve ratio imposed on China's banks is 17 per cent, which is very high. In addition, some banks have been writing off their non-performing loans (NPLs) and others have adequate provisions. Even so, loans to state-owned enterprises (SOEs) are around 30 per cent of the total, and many of them are to 'zombie' companies, which are chronically unprofitable. There is political resistance to greater discipline. Whether the government has become more serious about managing these issues will become evident only when banks are required to accelerate write-offs and securitise underperforming bank assets (Lardy, 2016).

This reservation reflects the fundamental policy contradictions in China between the party's call for a 'decisive role' for market forces, the role of the state and the party's preference for stability. The cost of stability can be high. For instance, banks' growing stocks of NPLs can be off-loaded to asset management corporations, as occurred in the 2000s. Government can recapitalise the banks and asset management companies by issuing bonds, in effect socialising the debt, or the banks can roll over the loans or convert debt to equity. However, these practices are associated with increased financial system uncertainty, which has international consequences given China's growing economic clout in the world, and consequences for China's real economy.

There is no debate about the huge effects that China's ongoing financial reforms and its goal for renminbi internationalisation will have in terms of China's international footprint in trade and investment. Some predict that these reforms will trigger massive capital flows in and out of the Chinese economy. These capital flows already include FDI flows. While inflows continue to be restricted to industries considered of strategic importance, onerous approval requirements on outward FDI have been eased. The slowing economy and factors such as the government's encouragement for corporations to 'go out' are associated with a surge of deals, involving both mergers and acquisitions and green field investments by corporate China.

The surge in outward investment by corporate China has signalled some of the problems and risks associated with deeper Chinese financial integration. Since 2012, reported Chinese mergers and acquisitions activity in the US and Europe has risen at very rapid rates. US investments increased threefold between 2010 and 2015, according to the Rhodium Group's China Investment Monitor (China Investment Monitor, n.d.). Some of the enterprises initiating these transactions are large indebted enterprises, such as SOE ChemChina's successful US\$44 billion bid for Swiss-owned Syngenta. Not only is ChemChina highly leveraged, but it is also far from clear that it has the capabilities to manage a large, complex and innovative company like Syngenta. The offer was an all-cash one, with CITIC Securities supplying US\$30 billion in financing (suggesting a government role) and HSBC loaning US\$20 billion. Reportedly, ChemChina is planning to sell equity shares in Syngenta and issue long-term debt. Larger questions remain about the role of the Chinese government in the transaction, reflecting China's strategic quest for security of food supplies (Kynge, Mitchell & Massoudi, 2016; Lardy, 2016).

In sum, China is sequencing the domestic reforms necessary to support financial integration into regional and global markets, with full capital account convertibility as its ultimate goal. Domestic financial market development is a work in progress; market forces, rather than the State Council and central bank, determine interest and (to an extent) exchange rates. As yet, there are no signs that the state will reduce its ownership (and with it, directed lending and moral hazard in the system) of the five large banks, which have potential losses on their corporate loan portfolios estimated by the IMF to be 7 per cent of GDP. The recent introduction of deposit insurance will mitigate moral hazard to some extent.

With respect to integration, foreign ownership of financial services remains controlled, but it is subject to gradual reform and opening beyond wealth management. Portfolio investment remains restricted. However, if the renminbi is to become a reserve currency, a deep, liquid and sound bond market will be essential. Until recently, China's inter-bank bond market has largely been closed to outside investors, except those with a quota under the Qualified Foreigner Institutional Investors (QFII) scheme. However, in June 2016, China signalled that it would open its onshore bond market to foreign investment by granting authorisation to a British investment management company, Insight Investment, to

enter the market. Remaining restrictions on foreign financial institutions in the inter-bank bond market and through the QFII and the Qualified Domestic Institutional Investor programs will also have to be lifted.

The surge in outward direct investment is integrating China into the world economy as China negotiates bilateral investment treaties with a large number of countries. US negotiations have been particularly protracted, as a result of US insistence that China shrink its negative list of excepted sectors. However, progress may resume as President Xi Jinping signalled that China will further liberalise the FDI regime in his address to the World Economic Forum in January 2017.

The recent surge in China's international flows is not without risks. One risk is the potentially distorting consequences of state subsidies and guarantees for Chinese enterprises. Another risk relates to the asymmetries in implementing the many bilateral investment treaties that give foreigners less access in China than the Chinese have abroad. A third risk relates to the uncertainties associated with Chinese banks' huge debt loads and whether they will be written off or securitised in a timely manner. If not, concerns raised include whether there will be defaults that spill over borders, or a confidence crisis in China that causes stagnation or slow growth.

In India, financial liberalisation is moving at a slow pace. One reason for this is that India passed through the GFC relatively unscathed, owing to its capital controls and the small extent of its external linkages, which has slowed the impetus for reform and opening. Foreign investing firms continue to face restrictions in most of the traditional industries. However, in the past two years, foreign investment permissions have been eased in some areas. In the insurance and defence sectors, caps on foreign shares have been raised to 49 per cent, up from 26 per cent. Foreign invested enterprises may be wholly owned in some policy priority areas, including marketing Indian food products, high-tech and capital-intensive activities in railways; coffee, rubber and other foodstuffs; medical device manufacturing; the e-commerce marketplace; and non-bank ATMs (Panagariya, 2016).

Domestic financial development is lagging, with state-owned banks still accounting for as much as 70 per cent of loans. India's financial system remains a hybrid system, with market forces permitted but continuing high levels of government intervention and state ownership. India's

domestic preoccupations are reflected in the requirement that all banks invest in public sector bonds; the state directs lending and requires that 40 per cent of bank loans go to 'priority sectors', including agriculture. The corporate bond market is heavily regulated and very small in size. In contrast, equity markets are open and well regulated, but capital controls continue to govern the flow of foreign funds into the debt market. By market capitalisation, India's biggest lender, HDFC, a private bank, is ranked number 63 globally. Since 2014, banking licences have been issued to 23 new players, nearly half of which are small finance banks. However, it is difficult to make money, and private and foreign banks look for investment and corporate banking for profits. Mobile banking is much talked about, but it has not taken off in India.

India's corporates have an advantage in international markets in that their home base market environment, despite government regulation, resembles the advanced countries and developing countries in Africa, in which they invest. India's equity markets are well developed and governed but their focus is largely domestic. An offsetting disadvantage is the small size of India's saving pool relative to China. Corporates have smaller assets and are largely on their own in international merger and acquisitions and FDI transactions.

Other key restrictions on the supply side remain to be tackled, including land acquisition laws and the successful introduction of a national goods and services tax. Highly restrictive labour laws have limited firm size and formal sector employment. However, four states have now liberalised such laws, and bankruptcy laws are also being modernised. Recently, the Reserve Bank of India conducted an audit of NPLs in the banking sector, which is a modestly encouraging sign that Indian institutions are committed to a process of reform in the domestic financial sector. However, the utility of the Scheme for Sustainable Structuring of Stressed Assets to facilitate the conversion of 'unsustainable' corporate debt into equity remains to be seen.

In summary, the two largest economies are gradually integrating into the regional and world economies as financial liberalisation proceeds. Domestic financial development continues, also at a gradual pace, because of domestic development priorities. Without deep, sound and liquid capital markets and a sound, well-regulated banking system, China would be ill-advised to fully open its capital account. India's economic modernisation priorities extend well beyond the financial sector to the real economy.

Empirical analysis of the effects of financial liberalisation on upgrading Asia–Pacific trade

Having provided a background on the two largest economies, we now turn to an empirical analysis of the relationship between financial liberalisation, financial integration and trade. Our specific focus is on countries moving up the value chain, as innovations increase productivity and the sophistication of goods exports. Understanding how the financial sector connects to the export sector can help to better understand the linkages between the financial reform agendas of East Asian governments and their economic integration strategies. We do not undertake this exercise to advocate for financial liberalisation as a potential influence on merchandise export sophistication. Rather, our goal is to determine whether financial reforms and efforts to move up regional value chains in trade can form complementary parts of a coherent economic policy reform strategy for governments in the region. As is made clear by the Chinese and Indian cases outlined above, maintaining the momentum of economic reform in developing countries requires movement on several fronts; financial sector reforms cannot be pursued in isolation to those occurring in the real sector. Therefore, it is important to understand the *connections* between policy strategies, which explains the focus of our analysis on the relationship between financial reform and export sophistication.

A deeper understanding of this relationship is timely, especially given the concerns about slowing global growth expressed in the IMF's April 2016 *World Economic Outlook*, entitled 'Too Slow for Too Long' (IMF, 2016). Asian growth can contribute to global growth through upgrading productive capacity, as China emphasises rebalancing its economy by encouraging innovation and productivity growth. Productivity performance is particularly important in increasing the sophistication of goods exports. In the analysis that follows, we measure this sophistication.

Measuring trade sophistication and upgrading

A useful way to measure the sophistication of a country's export basket is the export sophistication (EXPY) index developed by Hausmann, Hwang and Rodrik (2007). These authors derived an index for individual product sophistication, called PRODY, that, for each good x , is an average of the per capita income of each country that exports x , weighted by the

country's revealed comparative advantage in x . Then, the EXPY index for a country i is an average of the PRODYs for each good x exported by i . More formally, we compute:

$$PRODY_k = \sum_j \frac{(x_{jk}/X_j)}{\sum_j (x_{jk}/X_j)} Y_j$$

and

$$EXPY_i = \sum_k \left(\frac{x_{ik}}{X_i} \right) PRODY_k$$

where x denotes exports of a particular good, X denotes total exports from a country, i and j index countries and k indexes individual goods. Thus, the EXPY index provides an indication of the per capita GDP that we would *predict* a country to have, given what we know about its export basket (and what we know about the per capita GDPs of countries that export the same goods).

One of the problems with using the EXPY and PRODY indices is that, so far, they have relied upon the use of gross trade flows, rather than value-added data. As some countries are more heavily involved in processing trade than others, these measures may convey the appearance that some countries have very sophisticated export baskets, when in fact they may only supply a small fraction of the value added to the final goods. This objection has been raised to counter the authors' claim that China is an outlier in exporting goods that are much more sophisticated than its per capita GDP would suggest (Wang & Wei, 2010). Using value-added data would alleviate this problem, but such data are only available for a limited number of countries and for a limited number of years. However, progress is being made on this front. Another possible way to address the concern about value-added data would be to remove countries that are heavily specialised in processing trade from the sample; however, this is a highly ad hoc solution. As such, we make no special adjustment for this particular problem at this stage.

Increasing export sophistication in Asia

Initially, we construct a dataset of EXPY values for 201 countries in each year from 1962 to 2014. For our bilateral disaggregated trade data, we use the Observatory of Economic Complexity's trade values dataset.¹ For our PRODY values, we use an average of the PRODYs in years 2003–07—that is to say, we use time-invariant PRODYs. We take per capita GDP values from the Penn World Tables.²

We first describe the database and some of the trends and patterns that we observe in it, with a particular focus on Asian countries. In general, we observe that, globally, export sophistication convergence is occurring. Countries with unsophisticated export baskets have higher growth in export sophistication, on average, than countries with sophisticated export baskets (with a correlation coefficient of -0.26). The Asian economies examined—Bangladesh, China, India, Indonesia, Malaysia, the Philippines, Thailand and Vietnam—all have much higher EXPY values than their per capita GDPs might lead us to predict (see Figure 5.3). However, given the orientation of Asian economies towards manufacturing exports, this is not surprising. With the exception of Bangladesh and, possibly, Indonesia, these economies showed reasonably steady growth in EXPY values up to the time of the GFC.

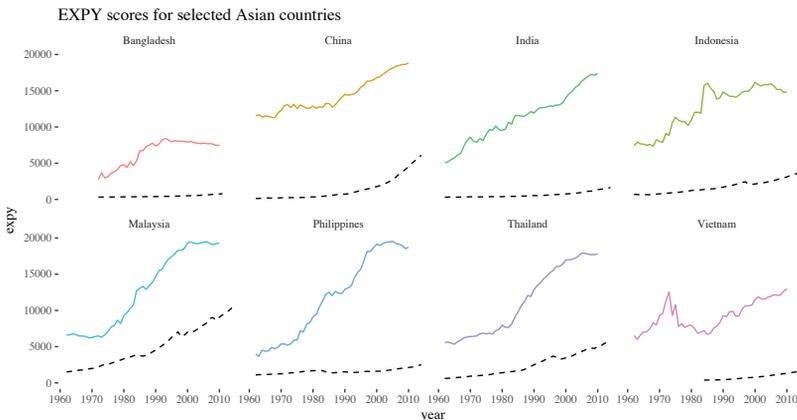


Figure 5.3: Trade indices and per capita income, selected Asian countries (1962–2014)

Note: Export sophistication index (solid lines); per capita income indices (dashed lines).

Source: See Appendix B.

1 atlas.media.mit.edu/en/resources/data/.

2 www.rug.nl/ggdc/productivity/pwt/.

Export sophistication and per capita income for the Asian countries is presented in Table 5.1. In 2010, the Philippines's export basket was roughly as sophisticated as Malaysia's, but its per capita income was less than a quarter of Malaysia's. India and Vietnam have the most sophisticated export baskets relative to their per capita income. However, all countries in this small sample display significantly more sophisticated export structures than might be expected, based solely on per capita income.

Table 5.1: Export sophistication and per capita income in selected Asian countries, 2010

	Per capita income, 2010	EXPY ('predicted' per capita income from export basket)	EXPY as a % of per capita income
Bangladesh	\$760	\$5,713	751
China	\$4,515	\$17,949	398
Indonesia	\$3,125	\$12,269	393
India	\$1,387	\$13,214	952
Malaysia	\$9,069	\$15,501	170
Philippines	\$2,145	\$14,733	687
Thailand	\$5,112	\$15,467	302
Vietnam	\$1,334	\$10,927	819

Source: See Appendix B.

Financial liberalisation and increasing export sophistication

There are various ways in which underdeveloped financial markets might impede a country's efforts to increase export sophistication. Exporting products, rather than simply selling them in home markets, requires firms to pay large fixed costs for market exploration and development. Other substantial costs include those for marketing and logistical services. 'Sophisticated' products, in our definition, are those produced primarily by richer (and, usually, capital-abundant) countries. This definition tends to imply that producers in poorer countries may struggle to enter markets dominated by firms in richer countries because they lack ready access to finance to cover the initial costs of entering the export market. Therefore, we might expect that only very profitable firms, or firms with secure access to financial markets, would be likely to enter sophisticated export markets. Moreover, domestic markets may offer insufficient economies of scale for

firms to ever profitably produce sophisticated goods. It is intuitive that the more sophisticated the good, the larger the fixed costs of entry are likely to be, because such products are likely to be more capital intensive.

In this sense, developed financial markets can be considered as somewhat analogous to factor endowments in trade, and it is likely that countries with sophisticated, liquid financial markets will have a comparative advantage in producing and exporting goods for which access to credit is more important (Beck, 2002; Rajan & Zingales, 1998). Thus, we might expect that, all other things being equal, countries with better developed financial systems will export more sophisticated products (Carluccio & Fally, 2008). It is likely that a more developed and privately owned banking system will direct credit to firms with products that align with the country's comparative advantage, whereas a state-owned banking system might encourage different firms. Jaud, Kukučnikova and Strieborny (2012) found this to be the case in countries with competitive banking systems. In those countries, firms that export products that are *not* in line with national comparative advantage are more likely to exit foreign markets than are firms producing products that conform with comparative advantage. In countries where banking systems are not yet well developed, exporting firms do not exhibit such behaviour (Jaud et al., 2012). The market discipline that comes with financial development might have different effects on different countries' export sophistication, depending on whether these countries have a natural comparative advantage in sophisticated exports (for example, as a result of large endowments of labour or land). In other words, financial reform influences export sophistication in two ways, which may work in opposite directions depending on the specific country. There is a 'comparative advantage concentrating' effect and a 'comparative advantage upgrading' effect. This hypothesis, while an interesting one, is not tested in this chapter, and is left for future work.

Despite the theoretical relevance of financial liberalisation to trade structure, widely used empirical trade models do not always incorporate financial constraints or, indeed, any kind of financial sector. However, a substantial recent theoretical literature has linked financial constraints with trade flows. Chaney (2016) made a crucial contribution by adapting the Melitz model of heterogeneous firms in international trade and adding an exogenous liquidity constraint to test the effect of financial imperfections on the extensive margin of trade. His model predicted that firm-level liquidity constraints are a key determinant of whether

individual firms do or do not export.³ Meanwhile, Goksel (2012) has shown that similar predictions can be derived from a Krugman New Trade Theory–style model.

Empirical testing by Manova (2008) demonstrated that equity market liberalisation has a positive effect on exports in sectors that possess financial vulnerabilities—that is to say, sectors in which firms require relatively more outside finance, or in which firms possess relatively fewer assets as collateral. Berman and Héricourt (2008) have shown that, when firms lack adequate access to financial markets, they tend to restrict exporting at the extensive margin more than at the intensive margin; in other words, a lack of financial development prevents firms from exporting at all (i.e. anything) more than it prevents existing exporters from exporting more of the same kind of product. Some of the literature has explored the mechanisms that drive these more aggregate-level results by exploring more detailed data. Firm-level data has been used to examine the effect of financial liberalisation on the propensity of Indian firms to import capital goods to upgrade technology. Bas and Berthou (2011) showed that private and foreign banks are more likely to encourage technological upgrading in industrial firms than nationalised banks. Egger and Kesina (2013) provided similar results for a panel of Chinese firms, and Manova, Wei and Zhang (2015) found that, in China, removing restrictions on FDI has helped to alleviate exporters' credit constraints arising from underdeveloped domestic financial markets. Manova and Yu (2016) showed why firms that struggle to obtain finance in the domestic formal sector in China choose to enter the processing trade sector rather than pursue higher value-added activities—processing trade typically requires less access to external finance. This literature suggests that financial reform can play a potentially major role in facilitating economic diversification and upgrading productive capacities in these economies.

What about the sequence of financial reform? As we have argued above, it is generally accepted that for reasons of macro-economic stability, it is preferable to open the capital account only as the domestic financial system is strengthened and modernised. One of the reasons that sequencing of regulatory reforms governing domestic and international financial flows may be important for export sophistication is that such sequencing could affect the ability of financial institutions to allocate credit to high-productivity firms. Theoretically, opening the capital account with a relatively uncompetitive domestic financial sector could

3 An unpublished 2005 version of the paper is often cited.

have both positive and negative effects on export sophistication. On the one hand, such liberalisation provides new sources of capital for exporters who have difficulty accessing domestic sources of credit (or firms that did not previously export but would have in the absence of such credit constraints), and allows savers to diversify their portfolios, lowering the cost of capital. Exporting firms tend to have more ‘international collateral’ than do non-exporting firms, in the form of future export revenues (Caballero & Krishnamurthy, 2001), so capital account liberalisation might be expected to disproportionately help exporters. Conversely, by facilitating the flow of external credit to firms in the non-tradeable sector, capital account liberalisation may encourage a reallocation of resources (such as skilled labour) from the traded goods sector to the non-traded goods sector; in this sense, it may harm rather than help efforts to increase the sophistication of exported goods.

Episodes of financial reform and export sophistication growth in Asia

Is this relationship between export sophistication and financial development visible in the data? In Figure 5.4, we plot the evolution of export sophistication relative to the introduction of major financial reforms in India (1991), Indonesia (1983), Malaysia (1987), South Korea (1991) and Thailand (1992). We plot the export sophistication indices for these countries, showing how they changed after each set of reforms. The dashed line is a linear time trend fitted to the seven years *before* the event. This trend is manually extended to the 10 years following the event to give a very rough idea of what might have been expected to happen to export sophistication in the absence of policy changes (such as financial sector reform) or other exogenous changes in the economic environment.

In Indonesia, there was a substantial jump in export sophistication after the reforms of 1983, but this declined in the latter part of the decade. Some of the initial increase was the result of the increase in liquefied petroleum gas (LPG) production in 1984. LPG is considered a relatively sophisticated export, according to the PRODY index, because it is mostly exported by richer countries. It is unlikely that financial reform had much to do with the LPG boom. However, there were also changes in Indonesia’s export basket that indicated signs of vigorous growth in more traditional industrial sectors. Indonesia’s 1983 reforms were substantially domestically oriented, with a particular focus on liberalising interest rates. After India’s 1991 liberalisation, EXPY growth was more or less unchanged until about

seven years after the reforms, when it grew quite strongly. As we will see below, there is some evidence that financial reforms are associated with higher export sophistication about seven years after implementation of the reforms. India's reforms were also domestically oriented, but more gradual than Indonesia's. If there is a causal link between export sophistication and financial liberalisation, this may explain why export sophistication also responded with a lag to the 1991 reforms.

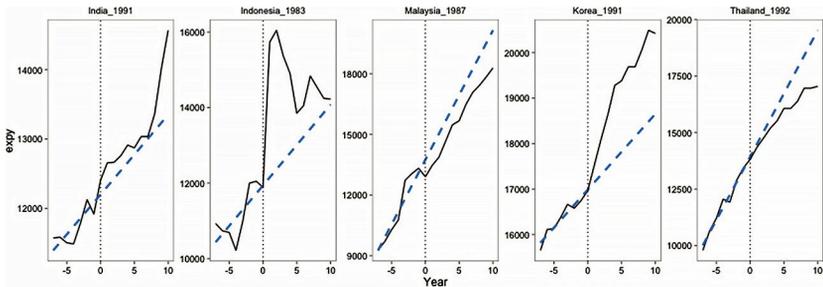


Figure 5.4: Export sophistication index before and after substantial financial reform events in India, Indonesia, Malaysia, South Korea and Thailand

Note: The year of the event, indicated in the title of each panel, has been set to '0'. The graph shows EXPY from seven years prior to the reform event to 10 years following the reform event, as well as an ordinary least squares trend for the first seven years of the x-axis, extended over the entire sample.

Source: See Appendix B.

Malaysia's EXPY growth was slightly less strong after the reforms of 1987 than before. Our dataset shows that the major reform in this year was a renewed commitment to interest rate liberalisation after an aborted effort earlier in the decade due to the weak global economic environment. Malaysia is distinguished from India and Indonesia because its capital account was already very open prior to the substantial reforms of the late 1980s. Indeed, from 1973 until the AFC, Malaysia imposed very few restrictions at all on foreign capital movements (see Manap & Ghani, 2012). The increase in South Korea's export sophistication after its 1991 financial reforms, domestic and international, was quite impressive. Bank lending rates and other interest rates were liberalised and restrictions on FDI were substantially loosened, although other controls on capital movements remained. The 1990s were a time in which the South Korean economy reoriented itself towards highly sophisticated exports in the micro-electronics, bioengineering and aerospace sectors. Firm evidence of a causal link between financial sector reforms and growth in export sophistication remains to be examined in depth.

Thailand's post-reform export sophistication growth, like Malaysia's, seemed to be slightly less impressive than before the reforms. Thailand opened its capital account before modernising its banking sector regulation. However, as entry into the sector was substantially blocked, the banks faced little competition. As Okabe (2006) argued, the lack of competition meant that the banks had little experience with financial intermediation. Hence, bank credit primarily involved short-term loans to the real estate and other services sectors, rather than long-term export-oriented manufacturing, which had been declining in profitability (although industrial firms did rely on short-term credit to increase their investment dramatically just prior to the crisis) (Dollar & Hallward-Driemeier, 2000). Thus, we might expect that poorly sequenced liberalisations might be less effective for increasing export sophistication, because of their contribution to speculative bubbles or other unproductive investments.

In the next section, we examine a possible causal connection between financial sector reform and export sophistication in a more rigorous econometric setting.

Evidence for the relationship between financial liberalisation and export upgrading

Before laying out our results, we begin by describing our empirical strategy. As our dependent variable, we use the EXPY variable, constructed as above. To test the robustness of our results, we also replicate each regression using the share of high-tech exports in manufactured exports from the World Bank (TECH) rather than EXPY as the dependent variable.

We include several control variables. Following the literature on export sophistication, we include per capita GDP and population (taking the natural log of both) plus a measure of trade openness, the imports share of GDP plus the exports share of GDP. To test our hypothesis about financial development aiding export sophistication, we test two commonly employed measures of the state of financial development: the ratio of liquid liabilities to GDP and the ratio of domestic credit to private sector firms to GDP. In regressions (7)–(10), we interact our measure of financial openness with the Chinn–Ito capital account openness measure, standardised so that the maximum value is one (this renders it a relative measure of capital account openness; that is to say, it measures a country's openness relative to the rest of the world) (Chinn & Ito, 2006).

Our empirical results are set out in Appendix A, Table A5.1. Our findings are as follows. The coefficients on the control variables are signed as expected and are mostly significant. The exception is our measure of trade openness, which is significant in regression (8) only. Three of the specifications are of note: (1), (8) and (10). In regression (1), we test the hypothesis that financial development, measured by domestic credit to the private sector as a proportion of GDP, will influence the share of manufactured exports that are classified as high technology; the regression does indeed suggest a positive relationship. This relationship is *not* found to exist with the EXPY variable when we test the equivalent hypothesis in regression (2). However, in regression (8), we allow for an interaction term between domestic credit to GDP and capital account openness, and we find that, although domestic credit to GDP *is* positively associated with higher EXPY, higher capital account openness relative to the rest of the world reduces this effect. The same phenomenon can be observed when using the liquid liabilities/GDP measure of financial development, as in regression (10). Regressions (8) and (10), which allow the effect of financial development on export sophistication to vary, depending on the openness of the capital account, are our preferred specifications. Regressions (2)–(6), which simply test the relationship between the two measures of export sophistication and the two measures of financial development, show no significant relationship. Regressions (7) and (9), in which the dependent variable is the high-technology exports variable, and which include the interaction with capital account openness, show no significant results either.

We interpret these regression results as suggesting that there is some evidence that financial reforms can be helpful for countries seeking to move into more sophisticated or more technologically advanced export markets. However, some caution should be exercised when opening the capital account, as there is evidence that it may hamper efforts to move up the value chain in manufactured exports. This result should not be taken as suggesting that capital account openness is necessarily a bad thing; the data we have used merely average out the historical experience of countries that have opened their capital account hastily and others that have taken a more measured and prudent approach. Our results are consistent with the following message for policymakers: developing the capacity and sophistication of domestic financial markets can yield positive results in terms of upgrading export baskets to more sophisticated, higher value-added product lines. A solid degree of capital account openness as

a medium-term policy objective is supported by the literature. However, policymakers should proceed carefully, as there is a potential for such openness to influence the export sector.

Capital account reform and sequencing

To further examine the proposition that the sequencing of financial reforms matters, we run regression (11), in which export sophistication is regressed, as before, upon population and per capita income, as well as on a set of dummy variables that characterise the state of financial regulation in a country. These analyses separately consider the effect of domestic regulation (measuring controls on credit and interest rates, as well as banking sector rules) and regulation on cross-border financial flows. Details on the construction of these dummy variables and other aspects of the regression are found in Appendix A. Again, we find that population and per capita income are positively associated with export sophistication in the goods sector. We find that countries with significant restrictions on both domestic and international financial transactions tend to have lower export sophistication than do countries that have relatively few of either kind of restriction, even when controlling for per capita income and population. We find that countries that have liberalised their domestic financial markets, but *not* cross-border flows, show no signs of having significantly more or less sophisticated export sectors than countries with fully liberalised financial sectors. We find that countries that have substantially liberalised cross-border flows, but which retain significant domestic financial restrictions, have, on average, a lower export sophistication score than do countries that have liberalised both domestically and internationally; however, the difference is significant only at the 10 per cent level.

In a cross-sectional sense, then, it appears as if the sequencing of financial reforms does matter—or, to put it slightly differently, that the financial *system* matters, where ‘system’ refers to the combination of capital account openness and domestic market liberalisation. Even when we control for per capita income, countries that open capital accounts without first developing their domestic markets seem to have lower export sophistication than do countries that have liberalised *both* domestic and international financial controls. Unfortunately, the regression does not establish the direction of causality; however, in light of the many case studies of the causes of the AFC, it seems intuitively obvious. It is possible that countries with more sophisticated exports relative to their per capita income are more likely to

have liberalised domestic financial markets and open capital accounts, but this seems less intuitive than an explanation in which the causality runs from financial deregulation to export sophistication.

Our empirical work, taken as a whole, suggests a possible connection between financial development and export sophistication, which is of interest to policymakers in Asian countries seeking to climb regional value chains. More work on this question is clearly desirable. Expanding the analysis to consider services as well as merchandise trade would be of great interest, but the available data is insufficiently disaggregated so far. It would also be interesting to test more disaggregated measures of capital account openness that distinguish between regulatory controls on different kinds of financial flows. However, although such disaggregated datasets exist, the time periods they cover are quite short and they do not allow us to adequately test the medium-term relationships between trade and finance that we test in our empirical work.

Our analysis suggests a relationship between the sequencing of financial liberalisation and export sophistication. Even when controlling for population and per capita GDP, the least sophisticated exporters are those that have only liberalised their capital account, without substantial domestic market development. Countries that have liberalised neither domestic financial markets nor international capital flows also have lower export sophistication than do countries that have liberalised in both senses. These results suggest to us that correctly sequencing future reform could be of assistance to China and India as they seek to move into markets with higher domestic value added and, hence, climb regional value chains.

Implications

Based on our export sophistication data, we recommend that China and India sequence domestic financial markets reforms as necessary precursors of capital account opening. The ambition of both countries to climb regional value chains by exporting higher value-added goods can be aided by correctly sequenced financial reform. As we have already emphasised, China's financial reform effort is proceeding gradually and methodically, with full capital account convertibility regarded as the end point.

More work on the connection between the channels through which financial reform influences real growth is needed, and export sophistication is, broadly speaking, a promising channel for further exploration. In

addition, the use of more fine-grained measures of capital account openness could be helpful in determining whether certain kinds of capital controls are more harmful (or advantageous) than others for countries wishing to move into more sophisticated export lines. For example, future work in this area could focus separately on the role of the regulation of inward and outward flows of FDI in driving increased export sophistication in the domestic economy. Further analysis that includes services sectors is also desirable, but is seriously hampered by the paucity of disaggregated data.

Conclusion

The world economy is still recovering from the GFC and, although growth in many Asian economies is quite strong, the Asia–Pacific region is not immune to the problems of weak global demand and slower trade growth. Therefore, policymakers in the region are understandably eager to devise ways to lift domestic growth rates, and financial market reform and opening is a major part of the overall reform agendas of the governments of China and India, among other Asian economies. The composition and sequencing of these reforms is of considerable importance to their success. The evidence provided in this chapter of linkages between financial reform and opening and export sophistication establishes that a relationship exists, and that further investigation using better data is required. As China, India and other Asian economies pursue policies encouraging producers to move up global value chains and to produce and export higher value-added goods, they should consider coordinating such strategies with their financial reform objectives to maximise the real economy gains from these reforms.

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Appendices

Appendix A: Regressions

Table A5.1: Regressions (1)–(10)

Regression	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Dependent variable</i>	TECH	EXPY	TECH	EXPY	TECH	EXPY	TECH	EXPY	TECH	EXPY
Lagged high tech	0.503*** (4.79)		0.490*** (4.55)		0.637*** (5.53)		0.507*** (4.89)		0.489*** (4.64)	
Lagged EXPY		0.465*** (6.23)		0.510*** (5.43)		0.467*** (6.16)		0.460*** (5.91)		0.507*** (5.22)
Per capita GDP	0.622* (2.12)	0.141*** (7.03)	1.106** (3.11)	0.131*** (5.11)	0.932*** (2.76)	0.141***	0.651*	0.140***	1.143** (3.06)	1.14 (5.00)
Population	0.644* (2.56)	0.037*** (4.39)	0.797** (3.23)	0.0374*** (3.79)	0.556* (2.50)	0.0374*** (4.48)	0.580* (2.45)	0.0403*** (4.67)	0.753** (3.13)	0.0412** (4.04)
Trade/GDP	0.0213 (1.03)	0.000460 (1.85)	0.0245 (1.28)	0.000351 (1.31)	0.0199 (1.27)	0.000473 (1.81)	0.0194 (0.97)	0.000527* (2.01)	0.0233 (1.28)	0.000482 (1.87)
Credit to private firms/GDP	1.312** (3.08)	-0.00188 (-0.20)					0.787 (0.72)	0.0456* (2.11)		
Liquid liabilities to GDP			0.717 (1.14)	0.00464 (0.33)					1.067 (0.91)	0.0741** (2.99)

Regression	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Capital account (KA) openness					-0.0838 (-0.12)	-0.0146 (-0.46)	-0.203 (-0.26)	-0.00211 (-0.06)	-0.0642 (-0.08)	-0.00892 (-0.29)
Credit × KA openness							0.658 (0.51)	-0.0646* (-2.46)		
Liquid liabilities × KA									-0.611 (0.24)	-0.0961* (-2.97)
Constant	-13.73* (-2.34)	3.153*** (6.51)	-20.03*** (-3.67)	2.833*** (4.90)	-15.29** (-2.68)	3.148*** (6.49)	-12.83* (-2.27)	3.171*** (6.26)	-19.47 (-3.40)	2.803*** (4.79)
A-B AR(1)	-3.109	-4.042	-3.049	-3.533	-3.233	-4.061	-3.120	-4.011	-3.055	-3.506
A-B AR(2)	0.416	0.821	0.387	1.603	0.615	0.828	0.418	0.815	0.402	1.604

Note: The *t* statistics are presented in parentheses. The symbols *, **, and *** denote p-values of <0.05, <0.01 and <0.001, respectively. A-B indicates the Arellano-Bond tests for autocorrelation of types AR(1) and AR(2).

Source: See Appendix B.

Regressions (1)–(10)

Regressions (1)–(10) employ the generalised method of moments two-step estimator with standard errors that have been corrected using the technique of Windmeijer (2005). The equations estimated are of the following form:

$$Export\ sophistication = \beta_0 + \sum_{j=1}^c \beta_j ControlVar_{itk} + \sum_{k=1+c}^f \beta_k FinancialVars_{itk} + \varepsilon_{it}$$

with variables instrumented by their own one-period lags in this level equation and by two-period lags in the first-differenced version of the above equation. We conduct the standard Arellano–Bond tests for autocorrelation of type AR(1) and AR(2) in the errors of the first-differenced equation. We also perform Sargan–Hansen J-tests for overidentifying restrictions. None of these tests indicate any cause for concern in our regressions.

Regression (11)

In this regression, five-year averages of all variables are taken. Following the results of the Hausmann test, a fixed rather than random effects estimator is used; standard errors are clustered at the country level. The state of financial liberalisation in a country i at period t is characterised by four variables: *neither*, *both*, *capital_only* and *domestic_only*. We consider that a country's financial system is relatively un-liberalised if the mean of the Abiad et al. (2008) variables measuring directed credit, credit controls, interest rate controls, entry barriers and privatisation variables is less than two (with the highest possible score being three). The capital account is considered relatively open if a country scores higher than two out of three on the variable indicating international capital movements.

Table A5.2: The effect of reform sequencing on export sophistication

Regression (11)	
Population	19.52*** (4.91)
Per capita income	0.15*** (4.39)
Capital account liberalisation only dummy	-714.72* (-176)

Regression (11)	
Domestic financial liberalisation only dummy	63.04 (0.1652)
Neither capital account nor domestic financial liberalisation	-888.4** (-2.96)
N = 272 R ² = 0.28	

Note: The *t* statistics are presented in parentheses. The symbols *, ** and *** denote p-values of <0.05, <0.01 and <0.001, respectively.

Source: See Appendix B.

Appendix B: Data sources

Variable	Source	Notes
EXPY	Product-level trade data from the Centre d'études prospectives et d'informations internationales BACI database; GDP data from World Development Indicators (WDI)	EXPY constructed as outlined in text above from time-invariant PRODYs
TECH	WDI	n/a
Population	WDI	n/a
Per capita GDP	WDI	n/a
Trade openness	WDI	Imports/GDP + Exports/GDP
Liquid liabilities to GDP	WFDD	n/a
Domestic credit to private sector	WFDD	n/a
Capital account openness	web.pdx.edu/~ito/Chinn-Ito_website.htm	KAO_OPEN (standardised) variable is used
Capital account liberalisation dummy (regression 11)	Abiad et al. (2008)	0 if continuous variable <2; 1 otherwise
Domestic financial liberalisation dummy (regression 11)	Abiad et al. (2008)	Described above; 0 if composite index <2; 1 otherwise

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