The influence of industry financial composition on export flow: A case study of a developing financial market

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Abstract

Using a dataset on bilateral trade flow at the industry-level from 1980 to 2006, I determine the influence of the industry financial composition on the export flow between a developing country, Pakistan, and its trading partners. Firms undertaking exporting activities may need to fund their investments from external sources of finances such as bank loans. The degree of financial dependence and asset tangibility of an industry can determine their ability to obtain external finance. Hence, the financial composition is likely to influence the value of export flow. I split the group of importing countries according to their level of financial development and whether they face episodes of banking crisis in order to determine the influence of industry financial composition under different macroeconomic environments. In addition, although the South Asian economies have similar characteristics in terms of the level of financial and economic development, Pakistan has a greater presence of larger domestic banks and foreign banks that are likely to prefer lending to firms that exhibit better characteristics that promise higher returns. Pakistan also records on average a higher level of banking credit than its neighboring countries for the time period considered reflecting its financial depth. I consider whether financial dependence and asset tangibility influence the ratio of total export flow from Pakistan to total export flow from South Asian countries at the industry-level in order to determine the impact of industry financial composition on the regional significance of industry-level export flow from Pakistan.

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1 Introduction

Financial factors of an industry such as financial dependence and asset tangibility are likely to influence the pattern of international trade. The development of financial markets, measured in terms of the depth of credit within an economy, determines the ability of the economy to accumulate the supply of credit provided by banks to the private sector and in turn determines the extent of the influence of financial factors on international trading patterns within a country. As participation in international trade may require traders to borrow in order to fund production, traders may need to rely on the financial markets to increase their international trading activities. Traders in one economy may take advantage of lower cost of financing in another economy. For instance, importers located in a country with relatively developed financial markets may obtain credit relatively easily compared to producers located in a country with relatively less developed financial markets allowing the producers to sell to foreign customers that are able to finance their investments and purchases at a lower cost of financing than the domestic customers. In other words, exporters in the less developed economy can be financed by lenders or importers in a more developed economy and enjoy lower costs of financing for the trade opportunities relative to producers that sell only for the domestic market. In addition, financial characteristics at the industry-level such as financial dependence and asset tangibility are likely to vary the degree of access to finance and costs of financing due to the presence of credit risk within an economy. Therefore, the development of the financial market influences the growth of investment across industries with varying degrees of financial dependence and asset tangibility as it lowers the risk of providing credit faced by the lenders and lowers financing costs for borrowers. The study of the effect of financial factors on international trading patterns is the focal point of this paper.

Episodes of financial uncertainty that reduce the availability of funds for the borrowers may also determine the influence of financial factors on trading patterns. Producers in industries that are likely to incur a greater proportion of their financing from external funds can be sensitive to the shortage of availability of finance necessary to fund their production as well as producers that hold smaller proportion of tangible assets that can be collateralizable. An expectation in the failure of financial institutions to honor deposits may lead to considerable financial distress that could culminate into instances of bank runs by borrowers, bank liquidation and output loss. Such shocks to the economy can be interpreted as episodes of banking crises, where financial distress is often accompanied by significant policy intervention from the central bank in order to control for the negative consequences. A banking crisis is likely to determine the level of growth rate for investments in industries

based on the level of financial dependence and asset tangibility. In this paper, I undertake a study to determine whether episodes of banking crises faced by an importing partner and its level of financial depth is likely to impact the influence of industry financial compostion on the export flow from Pakistan, a country that exhibits less developed financial markets than observed within many advanced and developed trading partners but has never itslef faced a banking crisis.

1.1 Literature Review

Financial dependence is calculated as the fraction of capital expenditure financed by external funds instead of internal sources of finance, such as cash flow. The seminal paper of Rajan and Zingales (1998) relates economic growth with financial dependence under different conditions of financial development and determines that industries which rely more on external sources of finance tend to grow disproportionately faster in countries that have financially developed markets. Beck and Greenberg (2003) incorporates export flow into the model of Rajan and Zingales (1998) and determines that well developed financial systems play an important role to promote exports as large up-front fixed costs required for exports are easier to finance. I focus on the relationship between export flow and industry financial characteristics as I vary the development of financial markets in the importing country in order to determine whether financially dependent industries generate greater exports to importing countries with different levels of development in their financial markets.

Asset tangibility measures the proportion of net property, plant and equipment in the total assets of a firm. Braun (2003) incorporates the level of asset tangibility into the Rajan and Zingales (1998) model as it determines whether countries with lower levels of financial development are likely to be characterized by investments in industries that have a higher proportion of tangible assets to total assets. This relationship can be explained by the theory that the degree of asset tangibility within an industry can determine the ability of a lender to seize tangible assets in case of default payments by the borrower. Almeida and Campello (2007) links financial dependence of a firm with its asset tangibility and determines that firms with lower asset tangibility are more likely to be financially constrained. In other words, an increase in asset tangibility diminishes the influence of financial constraints. Manova (2008) correlates liberalization of equity markets with the development of financial markets and finds that developed financial markets are likely to promote growth of firms in industries with lower levels of asset tangibility. Besedes et al (2012), on the other hand, suggests that higher asset tangibility can imply greater risk for firms, particularly in their initial years, as

it may potentially increase the size of collateral that can be seized by lenders due to failure of repayment of loans by the borrowers. Lower levels of financial development and poorer law enforcement may mitigate the probability of firm survival and counter the effect of asset tangibility on financial constraints and instead reduce the willingness of firms to borrow.

As credit constraints can influence international trade, the exporters in one industry can be disproportionately affected by the level of financial dependence and the impact of the credit constraints can be amplified when the importing country faces a credit crunch during episodes of financial crisis. Manova (2012) determines the role of credit constraints as it distorts trade flow in industries that have different needs of external financing and possess different levels of collateralizable assets across countries that vary in the level of financial development. Chor and Manova (2012) considers the role of credit constraints on international trade during the 2008-2009 global banking crisis. The effects of the global crisis is stronger in industries that require greater external financing or have fewer collateralizable assets as imports to the United States were significantly reduced in such industries. Using interbank rates to determine the level of tightness in the credit markets, Chor and Manova (2012) concludes that countries with higher interbank rates trade relatively less in industries that require external financing and trade relatively more in industries with greater collateralizable assets. On the other hand, Levhcenko et al. (2010) determines little influence of financial characteristics of industries on U.S. trade as financial dependence and asset tangibility do not observe the predicted pattern as expected in the regressions. It observes financial dependence to have a positive influence and asset tangibility to have a negative influence on both exports and imports but the effect is only significant for asset tangibility implying that the contribution of financial factors to the trade collapse maybe limited. This pattern can be influential in determining trade patterns not only for the U.S. but also for other developed financial markets. However, this pattern of financial characteristics on U.S. trade may not imply a similar pattern for countries with weaker financial systems as the U.S. has one of the most financially developed markets that can absorb shocks in a much effective manner.

Chang and Ma (2005) studies the effect of financial crisis on imports and observes a significant fall in imports during the year of the crisis as well as subsequent years. Do and Levchenko (2007) determines the correlation between the demand of external finance by exports and the development of financial markets, indicated by the credit to the private sector by banks as a percentage of GDP, and concludes that the former has a positive and a significant influence on the latter. Although, Do and Levchencko (2007) does include a variable to account for the banking crisis in the regressions to determine whether the occurrence of a banking crisis will lower the significance of external demand of finance by

exports, it does not determine whether a country that faces a banking crisis is likely to still observe a significant effect of the industry financial factors on its trading patterns.

Laeven and Valencia (2010) defines an occurance of an episod of banking crisis if there are significant signs of financial distress in the banking system followed by significant banking policies as a response to mitigate the losses due to financial distress. This definition of banking crisis will involve initial shortages in liquidity as lending by financial institution is reduced and is reflected in the contraction of output[1]. Braun and Larrain (2005) suggests that the impact of the shortage in liquidity and contraction in output is more severe in financially dependent sectors and the effect is magnified in industries with less tangible assets and in countries with poorer accounting standards accompanied with lower levels of financial development. In addition, Dell'Ariccia et al (2008) studies the effect of banking crisis on growth in terms of value addition, capital formation and number of firms in an industry and suggests that the differential effect of a banking crisis is stronger in financially dependent industries in developing countries. Firms in developing countries are likely to have fewer sources of external finance and can be exacerbated during a banking crisis as the limited number of funding options are likely to be reduced. Demirguc-Kunt and Detragiache (1998) determines that although lower GDP per capita does increase the likelihood of a banking crisis, weaker macroeconomic environment accompanied by low GDP growth increases the risk of a banking crisis. However, the costs of a banking crisis are likely to be higher in countries which have a larger share of credit to the private sector.

On the other hand, Kroszner et al (2006) determines that the impact of the financial crisis is stronger in financially dependent industries in developed countries as they are likely to borrow more in pre-crisis periods relative to financially dependent industries in developing countries. This creates a greater exposure of financial credit and a negative effect on the growth rates compared to industries within shallower financial systems. However, the developed economies are likely to recover from a financial crisis faster than developing economies and in turn reduce the impact on output in the long term compared to a developing economy. Furceri and Zdzienicka (2009) considers the influence of financial crisis on Central and Eastern European countries and finds that the long term effects of a financial crisis on the deterioration of output is stronger in the economies that have experienced 'excessive' growth in their credit markets. Such economies may have undertaken unsustainable credit expansion that could lead to financial instability and may have borrowers that may lack the capacity

[1]Governments may intervene by injecting liquidity through a bank recapitalization process in order to correct the shortage of credit resulting from the banking crisis. However, borrowers that have increased their leverage substantially during pre-crisis period may lose confidence in the financial institutions as a result of the crisis, and the lack of demand may reduce the amount of credit provided by the banking sector.

to absorb financial shocks relative to borrowers in developed economies in the long term.

The lack of information on borrowers in weak financial markets can dominate the decision-making of the lenders. A credit crunch as a result of a banking crisis can have a devastating effect on the exporters from developing financial markets as providing credit to exporters in such markets by lenders located in developed financial markets may be considered riskier than providing credit to their domestic borrowers. Financial institutions may prefer to reduce their exposure to borrowers in order to limit the negative effect of uncertainties that are prevalent during a crisis, particularly if the borrowers are located in exceptionally less developed financial markets. Berman and Martin (2012) considers the effect of financial crisis in the importing countries on the exports from sub-Saharan African countries and determines that the effect is negative on exports from the region. In addition, it also determines that the effect on the exports from the region is significantly greater compared to other regions as exporters from sub-Saharan African countries are likely to face the decline in the exports due to both income effect as well as disruption effect. The former takes place as the richer importing countries are less likely to import goods from sub-Saharan African countries during a crisis. On the other hand, the latter takes place as a result of the fall in trade which is independent from the fall in income of importing countries. For instance, lack of availability of trade finance during a banking crisis has been considered as a major determinant in the decline in exports from the sub-Saharan African region. I intend to study the influence of industry financial composition on export flow from Pakistan to countries with varying levels of financial development. Although, South Asian countries have weakly developed financial markets, the level of financial development is on average ranked higher than that observed in sub-Saharan African countries. Therefore, the pattern predicted for Pakistan may differ from that observed in sub-Saharan African countries as lenders in developed financial markets may lend to borrowers in Pakistan if they believe that certain industries are likely to grow as the importing country faces a banking crisis.

To the best of my knowledge, I conduct the first study on the effect of the financial composition of industries on export flow from Pakistan to its trading partners based on the level of development of financial markets in the importing countries as well as episodes of banking crisis faced by the importing country. The study is also unique as it determines the effect of industry financial composition on the export patterns originating from a developing country. I include a dependent variable that is calculated as a ratio of export flow from Pakistan to the total export flow from South Asian economies as they are similar in terms of the development of their financial markets. Pakistan records the highest average percentage of domestic credit provided by the banking sector as a percentage of its GDP over the time

period considered, indicating the level of development of the financial market within South Asia. Pakistan also has a greater presence of larger domestic banks and foreign banks that are likely to prefer to lend to firms which exhibit better firm-level characterisitics, such as exporting firms. Hence, the influence of the financial factors at the industry-level on the ratio of exports from Pakistan to the total exports from South Asian economies may reveal a preference of exports in certain industries and the influence of this ratio may vary with the level of banking credit as well as by the episodes of banking crises faced by the importing country.

2 Theoretical Discussion

2.1 Linking Financial Institutions with Exporters

Amiti and Weinstein (2009) determines that there is a negative effect from the health of financial institutions on exporting firms during a banking crisis. Exporters are likely to be sensitive to the availability of financing options due to their larger fixed and sunk costs required to enter the export market as well as the need for higher working capital in order to finance production of the exported goods relative to firms that produce only for the domestic market. The seminal paper of Myers and Majluf (1984) points out that the better performing firms, such as the exporting firms, are likely to prefer internal funds (i.e. retained earnings) to finance their investment needs and will only seek external financing if the internal funds are not sufficient. As exporting activities may require large up-front payments from internal sources to finance fixed and sunk costs related to entering a new market, it is likely that exporters will demand external funds to finance the production activities and purchase the necessary fixed assets. Exporters from developing countries with weaker financial systems are likely to request finance from lenders located in a relatively developed financial market or borrow from large domestic financial institutions that have sufficient funds to finance their investments. Larger banks with greater reserves to finance large investments and their ability to monitor loans more efficiently are likely to be preferred source of lending for exporters. Financial integration has promoted flow of funds from lenders in developed financial markets to borrowers in less developed financial markets that are characterized by riskier investments but compensated with a higher rate of return[2]. Lenders in relatively more developed markets

[2]According to Claessens et al (2008), even if the foreign banks with headquarters in developing countries may have a larger proportion of subsidiaries, their proportion of assets is likely to be significantly lower than the assets of foreign banks with headquarters in developed countries. Hence, the influence of foreign banks from developed countries can be significantly larger relative to the foreign banks from developing countries.

may provide loans to borrowers in less developed markets where repayments are made in terms of the value of exported goods which is exchanged between the borrower and the lender[3].Similarly, as exporters are likely to be more productive and observe better firm-level characteristics, large domestic banks may target such firms.

Iacoviello and Minetti (2010) determines the importance of foreign lenders to domestic borrowers, particularly exporting firms, as foreign lenders with their larger reserves and more efficient monitoring of investments compared to domestic lenders can provide borrowers with greater productivity and output. On the other hand, firms that borrow from foreign lenders tend to be larger and are more likely export. Hence, there is a natural hierarchy in terms of the size of the borrowers and the lenders as foreign lenders will more likely lend to exporters rather than non-exporters in other countries, while exporting firms are likely to borrow from foreign lenders. This natural hierarchy also holds for relatively larger domestic lenders as they seek profitable lending opportunities.

Goldberg et al (2000) lists some arguments in favor and against foreign bank participation in the local financial markets. It points out that although foreign lenders may increase the amount of funding available to domestic borrowers to finance their projects that otherwise may be financially constrained, foreign lenders may also 'cherry pick' the best performing borrowers and leave the riskier borrowers to the domestic lenders. Detragiache et al (2008) points out the role of foreign lenders in 'cream-skimming' as such lenders are likely to lend to better performing firms with greater growth opportunities and benefit firms with 'hard' information rather than 'soft' information. As foreign lenders based in more developed financial markets and larger domestic lenders are likely to lend in financially dependent industries as the capacity of firms to borrow is higher, export growth is likely to be observed in such industries. Choudhury (2010) determines the importance of development banks in India that are similar to large domestic banks to fund firms in financially dependent industries with their specialized financial services aimed to promote growth. However, foreign lenders may not have 'hard' information on firms, which is determined by the proportion of tangible assets owned by a typical firm, in an industry compared to domestic lenders. In addition, larger domestic lenders with their larger size of pool of borrowers may not prefer to monitor borrowers with 'soft' information. In summary, due to imperfect capital markets and the resultant credit friction, foreign and larger domestic lenders are likely to lend to firms that belong to industries characterized with higher level of asset tangibility[4].

[3]To simplify the model, I assume that every industry produces exportable goods and the lenders expect to be repaid in terms of tradable goods. As I consider manufacturing industries only, it is likely that majority of the goods produced are tradable goods.

[4]Although, I assume financial mobility between countries, capital markets are assumed to be imperfect.

Mian (2006), using an extensive dataset on the Pakistani banking system that links borrower characteristics with lender characteristics at the loan-level, determines foreign lenders relative to domestic lenders are likely to finance borrowers in Pakistan that are less monitoring-intensive and have 'hard' information about their characteristics. On the other hand, when the importing countries face a banking crisis, lenders reduce their supply of credit to domestic borrowers. Demirguc-Kunt and Detragiache (1998) suggests that lenders in countries facing a banking crisis are likely to hedge some of their risk by lending to countries that do not face a banking crisis. With the assumption that large domestic lenders are also likely to own assets in financially developed markets, such lenders may also be affected by the banking crisis. Consequently, the banking crisis can have an adverse effect on the financially dependent industries that the larger lenders are otherwise willing to lend during non-crisis periods. Given the supply of credit and the development of the financial markets, lenders may finance firms with lower levels of asset tangibility located in countries that do not face a banking crisis as such industries are relatively safer and provide profitable opportunities for investments than the domestic industries with similar characteristics.

In order to incorporate the role of an importer into this model and follow a hierarchical structure, a larger lender finances a domestic borrower who is likely to be an exporter and vice-versa. Exporting firms are typically larger and better performing in terms of sales than firms that sell only to the domestic market. Partial revenues from sales will be collected by the larger lender as payments for debt servicing. An exporter can sell his output to countries with different levels of financial development but will maximize revenue by selling to countries that provide highest returns in terms of value for the given fixed and sunk costs. After the demand of the product sold by the exporter has been met by the importers in countries that provide the maximum returns, the exporter can sell its products to other countries after paying the related fixed and sunk costs to enter the market. During a banking crisis in the home country, lenders may fund exporters located in foreign countries that are relatively less affected by the financial volatility, particularly in industries sensitive to a banking crisis, as importers in the home country can instead purchase inputs produced previously by themselves from producers in countries where volatility is lower. This provides an opportunity to finance exporters in countries where otherwise firms would not be provided financing due to the 'soft' nature of tangible assets available within the industry.

In addition, as Pakistan has attracted foreign lenders and has a greater presence of large

Similar to large domestic banks, foreign lenderes are likely to have *transactional based* lending to its borrowers, where 'hard' information on the borrowers (such as information on size of tangible assets) is generally preffered.

banks relative to other South Asian economies, the influence of lenders on borrowers will be greater in Pakistan relative to the influence of lenders on borrowers in other South Asian economies. According to Claessens et al (2008), about 23% of total assets in the banking sector were owned by foreign banks in Pakistan in 2005, compared to 9% in Nepal and 5% in India. Bangladesh and Sri Lanka have placed restrictions on the entry of foreign banks. Similarly, translating market share into market power, Musleh-ud-Din and Khwaja (2006) reports that the five largest banks in Pakistan contributed 77% to the market share of deposits in 1999. Barth et al (2001) reports that the five largest banks in India and Nepal contributed 42% and 55% to the market share of deposits in 1999. The foreign and the domestic borrowers in Pakistan had relatively greater influence on the financial market than the foreign and domestic lenders in India and Nepal. Greater credit depth in a country creates greater potentials for lenders as the finances provided tend to be more secured and outcome more predictable. Therefore, the larger lenders that contribute to the greater financial depth may prefer to lend to exporters in financially dependent industries. In turn, exporters may prefer to export to financially developed markets as such exports can provide greater export value than exports to less financially developed markets that may not sufficiently provide the export potential needed to finance the costs of borrowing. The ratio of exports from Pakistan to total exports from South Asian economies will be negatively influenced by financial dependence within low banking credit countries as exports to these countries will be relatively concentrated in less financially dependent industries. On the other hand, the relatively greater presence of foreign lenders in Pakistan will influence exporters in industries characterized by greater asset tangibility to increase their export flow.

3 Data

In Appendix A, I list the definition and source of each variable used in the regressions. The data on export flow is borrowed from de Sousa et al. (2012), which is listed on the CEPII's website. The values of financial dependence, asset tangibility, capital intensity, human capital intensity and natural resource intensity at the industry-level is originally listed in Braun (2003) and borrowed from Manova (2008). The data on contract intensity of each industry is borrowed from Nunn (2007) and the import demand elasticities from Nicita and Olarreaga (2006) and Kee et al (2008).

In Appendix B, the countries are sorted according to their OECD membership status and high, middle and low level of banking credit. In Appendix B, I have also listed the countries that are considered as lower middle income countries by the World Bank. I clas-

sify Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka as South Asian economies.

In addition to splitting the group of countries according to their OECD membership status, countries have been split according to high, middle and low banking credit[5]. Using the average banking credit, which is calculated as the mean of domestic credit provided by banking sector (% of GDP) for the importing countries over the time period, the degree of banking credit is classified according to the 75th (between 103.16% & 266.93%) and 25th (-26.62% and 30.19%) percentile of average bank credit of all importers for high banking credit importers and low banking credit importers respectively. Average banking credit of Pakistan (at 49.15%) would rank it amongst countries with middle banking credit. With domestic credit provided by banking sector being considered as an indicator for the level of development of the financial markets as it determines the level of financial depth within the country, Pakistan has a financial market that is more developed than the financianl markets in low banking credit countries but less developed than the financial markets in high banking credit countries. It is also important to note that the banking credit has only been included for those years for which an importing country is a trading partner of Pakistan as this will remove any variations in the level of banking credit that may occur when the country is closed to imports from Pakistan.

4 Empirics

In Tables 1, 3, 5 and 7, I have considered the flow of exports from Pakistan to its trading partner as the dependent variable. In Tables 2, 4, 6 and 8, I have considered the export flow from Pakistan as a ratio to the total export flow from all South Asian economies to the respective trading partner of Pakistan. Although, South Asian economies have financial markets that are similar in the level of development, Pakistan observes one of the highest average banking credit for the period considered within the region. The purpose of this dependent variable is to determine whether financial characteristics are likely to increase the relative export flow from Pakistan as the relatively stronger financial markets within Pakistan may promote exports relative to other South Asian economies particularly when

[5]Although, all OECD member countries have either high or middle banking credit, none of the OECD member countries have low banking credit. On the other hand, not all high banking credit countries are OECD member countries. As there are several non OECD countries with high banking credit, OECD membership status may not be the best indicator for the development of financial markets. Therefore, the sample is also split according to the level of banking credit.

the importing partners are facing a banking crisis[6]. The regressions for Tables 1,3 and 5 can be stated as:

$$\ln ExportFlow_{ijt} = \beta_1 Findep_i + \beta_2 Tang_i + \beta_3 Z_i + \alpha_j + \eta_t + \varepsilon_{ijt} \quad \text{(Equation 1)}$$

where $ExportFlow_{ijt}$ is the export flow from Pakistan to its trading partner, $Findep_i$ is the variable accounting for the financial dependence at the industry-level, $Tang_i$ is the asset tangibility at the industry-level. Z_i is industry-level controls such as contract intensity, capital intensity, human capital intensity, natural resource intensity and import demand elasticity. To account for unobserved effects in the model, I include α_j as the country fixed effect, η_t as the time fixed effect. ε_{ijt} is the error term which is distributed as $\varepsilon_{ijt} \tilde{} N(0,1)$. The notations i, j and t define industry, country and year respectively[7]. In addition, although not reported for the regressions below, the F-statistics reject the hypothesis that year and country fixed effects are zero and strongly supports their inclusion. The industries are classified using *ISIC Revision 2*. In Tables 2, 4, 6 and 8, the regression equation is similar except that the dependent variable is a ratio of Pakistan's export to the total exports of all South Asian economies to the particular importing country. Using the export flow as the dependent variable is similar to the concept introduced in Rajan and Zingales (1998), which uses growth rate in real value added for each industry as a dependent variable. I adopt a strategy similar to Chor and Manova (2012) which implements US imports at the industry-level and Manova (2012) which implements bilateral exports between trading partners as their dependent variables to study the correlation between international trade and financial factors.

The inclusion of importing country and year fixed effects can reduce issues related to the omitted variable bias that may otherwise occur as importing country and year characteristics can influence trading patterns. As the variables accounting for financial dependence and

[6]Exports from Pakistan constitute a small percentage of total GDP and exports to any single trading partner is a much smaller percentage. It is unlikely that exports by itself will influence the development of the financial markets in Pakistan. Therefore, we can assume that the development of the financial markets has an exogenous effect on the trading patterns of Pakistan.

[7]During the 1990s, there was an increase in the prominence of trade from other South Asian economies, particularly India, that significantly reduced relative exports from Pakistan. Other South Asian economies also had evolving financial markets that promoted exports which could also have been accompanied by factors at the industry-level, such as subsidies and trade promotion policies. This effect may be difficult to control as a country specific industry-level variable in the regression that uses a dependent variable which sums up the trade from all South Asian countries. Inclusion of the variable accounting for export patterns of lower middle income economies may help to mitigate some of this effect as the variable may be determined by the policies undertaken in general across countries with similar income levels.

asset tangibility are borrowed from the US data, endogeneity between export flow and the independent variables is not considered a major issue in the above model. It is unlikely that trade flow between Pakistan and its trading partners is likely to have any influence on the values of the financial indicators of industries in the importing country as the export flow from Pakistan will only be a small percentage of total trade flow, domestic and foreign, for an industry. The financial indicators will not be affected by any shocks to the development of financial markets within Pakistan as the values are borrowed from the US data. Further, with the US considered as one of the most financially developed country, the values for the financial indicators are likely to be stable and can be adopted to create a similar ranking of industries based on the characteristics across other countries[8]. The simple assumption is that the financial factors of industries are influenced by level of demand and characteristics of the industries instead of country characteristics as borrowers in a domestic country are free to borrow funds from foreign sources but not necessarily free to move factors of production between countries. Financial characteristics at the industry-level can hence be considered uniform across countries. The group is split on the basis of country-level indicators, such as OECD membership status, level of banking credit and whether a country faced a banking crisis during a particular year. This splitting of the group introduces an exogenous variation as it is unlikely that industry-level financial characteristics will directly influence country-level indicators. The export flow between Pakistan and an importing country is not likely to be significant to influence country-level characteristics such as the development of the financial markets and the occurrence of a banking crisis in the importing country. Even though the exports from Pakistan may significantly decline during the period the importing country faces a banking crisis, it is not likely that the decline in the export flow between Pakistan and the importing country is the cause for the banking crisis. This can be ascertained by the fact that the absolute value of correlation between industry-level and country-level indicators is less than 10%. In addition, the multicollinearity that would lead to high correlation between the independent variables used in the regressions is also not a concern as the variance inflation factor does not exceed more than 10 for the independent variables. The standard errors are clustered at the importing country-level as export flow to a particular importing country can be correlated.

One of the major reasons for a banking crisis is the oversupply of banking credit within an economy in the period preceding the crisis. As noted in Hardy and Pazarbasioglu (1999), the domestic credit provided by the banking sector as a percentage of GDP (gross domestic product) follows a boom and bust pattern in advance of a crisis and then falls during a bank-

[8]For this reason, trade flow between the United States and Pakistan has not been considered.

ing crisis. Further, a banking crisis also results in lower output levels that may negatively affect GDP. With banking credit and GDP both falling, it is difficult to predict the intensity of the boom and the bust of the domestic credit provided by the banking sector as a percentage of GDP. Therefore, although the episodes of banking crisis may lower the absolute value of the domestic credit provided by the banking sector, it may be independent from the domestic credit provided by banking sector as a percentage of GDP. However, as banking crisis is related to loss of output, it can be used as a suitable indicator for a fall in demand of exports from Pakistan as it inhibits the ability of the importing country to purchase foreign goods. Though, as discussed earlier, the effect of the banking crisis can only be exogenously related to the export flow from Pakistan and the industry financial characteristics.

5 Results

5.1 Discussion on Figures

In Figure 1, I observe an overall decline in the annual average real value of bilateral exports from Pakistan at the industry-level between 1980 and 2006. An increase in the number of industries that exported over time and lower export value growth rates relative to the inflation rate in Pakistan may have attributed to this decline. In Figures 2 and 3, financial dependence and asset tangibility have both been affected by the financial liberalization program that started in 1988. As the government allowed private banks to operate in the country, loans for product development and participation in international trade may have become easier to avail and in turn helped to increase the exports in industries that are financially dependent. The spike and the subsequent sharp decline in financial dependence and asset tangibility respectively can be a result of an increase in the number of exporters as financial liberalization may have allowed firms to undertake activities that were previously constrained by their inability to finance their investments. In addition, the pattern does exhibit more volatility towards non OECD countries. On the other hand, a prominent decline in the asset tangibility of industries exporting to non OECD countries around the time period Pakistan experienced liberalization in its financial sector can be attributed to the presence of greater availability of sources of external financing as banks were relatively more willing to fund industries which were characterized with a low level of asset tangibility or with 'soft' information. As the effect of the shock from financial liberalization subsided, the average financial characteristics rebounded to their original levels.

In Figures 4, 5 and 6, I observe a similar pattern to Figures 1, 2 and 3. In Figure 4, the

average real value of exports to countries with high, middle and low banking credit observe a similar trend as the real value of bilateral exports to OECD member and non OECD countries respectively. Similarly, in Figures 5 and 6 there is a similar trend of financial characteristics as in Figures 2 and 3. Although, the direction of the real value of bilateral exports and financial characteristics is similar across both OECD member and non OECD countries as well as high, middle and low banking credit countries, the volatility in the numbers is greater in non OECD countries and middle and low banking credit countries than OECD members and high banking credit countries. This is consistent with the literature that states the volatility in production patterns as a result of a banking crisis is expected to be higher in developing countries. An increase in average financial dependence and a decrease in average asset tangibility of all the industries within the country should indicate an improvement in the capability of firms to participate in international trade. Therefore, I predict that bilateral export value will be positively associated with financial dependence and negatively associated with asset tangibility.

In Figure 7, the average of the ratio of bilateral exports from Pakistan to total bilateral exports from South Asia declines for both OECD member and non OECD countries, with a sharper decline observed in early 1990s. This sharper decline can be attributed to liberalization of trade in India as Indian exports started to dominate total exports from the South Asian region. The ratio for non OECD countries declined from a peak of more than 0.5 to about 0.15, while the ratio for OECD members declined from a peak of 0.25 to less than 0.1. In Figure 8, I observe a similar pattern to that observed in Figure 7 as there is a decline in the ratio for both high banking credit countries as well as middle and low banking credit countries. As expected, the decline in the average real value of bilateral exports is accompanied by the decline in the average of the ratio of Pakistan's exports to South Asia's total exports and that the shift in the composition of the financial characteristics of exports may influence this decline.

In Appendix C.1, I sort the industries according to the size of exports. The top 5 exporting industries by export value for Pakistan are the manufacture of textiles, wearing apparel, food industries, leather and petroleum products.

In Appendix D.1, I observe a positive correlation between the ranking of exports by value from Pakistan and the ratio of exports from Pakistan to the sum of exports from South Asian economies. The industries that rank high in terms of export value also rank high in terms of the ratio. Therefore, Pakistan may have a comparative advantage against its South Asian neighbors in the production of goods in industries that rank high in terms of export value.

In Appendix E.1 and Appendix E.2, export flow from Pakistan falls when the importing

country faces a banking crisis but export flow from Pakistan as a ratio of total exports from South Asian economies increases. The average of the bilateral exports from Pakistan is more than 30% greater during the periods when importing countries are not facing a banking crisis against the periods when importing countries are facing a banking crisis. The results hold across all categories of countries, regardless of OECD membership status and banking credit. Even though exports from Pakistan may fall during periods of banking crisis, exports from Pakistan are likely to be relatively preferred during such periods[9]. In Appendix E.3 and Appendix E.4 , the industry-level composition of exports based on the financial characteristics, although small, increases in financial dependence and decreases in asset tangibility for periods an importing country does not face a banking crisis. The average financial dependence and asset tangibility is calculated on the basis of the number of industries that export during a period. This may result in a lower average when the number of industries that export, due to the demand-side effects, is higher. During a banking crisis, the decline in domestic output from financially dependent industries and industries with lower asset tangibility may generate some import demand from such industries in countries that do not face a banking crisis to substitute domestic production, resulting in an increase in average financial dependence and a decrease in asset tangibility at the industry-level. This direction in the average financial dependence and asset tangibility across the level of financial development of importing countries explains that the pattern of the financial composition of exporting industries from Pakistan to importing countries with differing levels of financial development.

The above figures reveal a pattern for the export flow between Pakistan and its trading partners and for the ratio of exports from Pakistan to the total exports from South Asian economies. There is a decline in both values from 1980 to 2006. Financial dependence has shown an upward trend in the late 1980s and 1990s. On the other hand, asset tangibility has shown a downward trend in the late 1980s and 1990s. The trend has been more volatile for non OECD countries and countries with low and middle banking credit than for OECD countries and and countries with high banking credit respectively. The trend on the annual banking credit observed in Appendix F.1 can relate to the trend of industry-level financial dependence and asset tangibility, as the banking credit in Pakistan had a slight upward trend till late 1990s and then crashed in 1998[10]. In addition, countries that have faced a banking

[9]OECD membership status and the level of banking credit as well as the episodes of banking crisis in importing countries are all assumed to be exogenous to the export flow from Pakistan. Exports from Pakistan, as it may account for only a small percentage of total imports to its trading partner, is not likely to influence country-level characteristics of its trading partner.

[10]The fall in banking credit in 1998 can be attributed to the nuclear tests that were conducted in May

crisis have slightly favored exports from industries that are financially dependent but with lower asset tangibility.

The level of domestic credit provided by the banking sector as a percentage of GDP in Pakistan has remained relatively constant between 40% and 60% from 1980 to 2006. Other South Asian countries have grown in their level of domestic credit between this time period. The figures above reveal average export values and financial composition across countries and does not explain the effect of the industry financial composition on the export flow as well as the ratio of exports from Pakistan relative to total exports from the South Asian economies within importing countries with certain country-level characteristics. The influence of the industry financial composition on the export flow can have a differing effect within countries with varying country-level characteristics after controlling for certain industry effects such as contract intensity and factor intensities. I aim to determine the influence of the financial characteristics of at the industry-level on the export flow and the ratio of exports from Pakistan to the total exports from South Asian economies within an importing country for a given year. I include country-level and year fixed effects and certain industry controls in the regressions listed below. The group of countries is divided according to the various measures of economic development and development of financial markets, using OECD membership status and level of bank credit respectively. In addition, the influence of the financial factors on export flow and ratio of exports can differ when importing countries face a certain period of banking crisis. This will determine whether the relationship between financial characteristics and export pattern differs across countries at different levels of economic, financial development and experience a shortage of banking credit through their crisis.

5.2 Discussion on Tables

In Table 1, the bilateral export flow from Pakistan is positively associated with financial dependence for the pooled set of countries, OECD member and non OECD countries at 1% level, 10% level, and 5% level of significance respectively. It is also positively associated with asset tangibility within the set of OECD member countries at 5% level of significance. The developed OECD member countries are likely to demand exports from industries that also provide higher levels of asset tangibility. As larger lenders are likely to provide loans to exporters that belong to industries with a greater proportion of tangible assets or with 'hard' information, export flow to OECD member countries is likely to increase as the asset tangibility of such industries increases. Contract intensity is negatively associated with

1998, which lead to subsequent sanctions being imposed on the financial market in Pakistan. This fall in banking liquidity has been discussed in Khwaja and Mian (2008).

bilateral exports but significant at 1% level for all three set of countries. This can imply that all countries are likely to import goods from Pakistan that are available in a spot market rather than require a contractual agreement. The weaker legal framework characterized in Pakistan can result in trade in the less contract intensive industries, but financially dependent industries are likely to positively influence export flow from Pakistan.

Capital intensity is negative and significant at 5% level and 1% level within pooled countries and OECD member countries respectively. The export flow of Pakistan to OECD member countries is likely to be labor intensive. Human capital intensity and natural resource intensity are both negatively associated and significant at the 1% level with export flow. Import demand elasticity is negative and significant at the 1% level for OECD member countries but at 5% level for the pooled countries and non OECD countries. The negative effect of import demand elasticity suggests that exports are likely to be price sensitive as the percentage decrease in quantity imported is greater than the percentage increase in import price. Lastly, the sum of exports from lower middle income countries is likely to be positive and significant at 1% level for all set of countries. This indicates that the value of sum of exports from lower middle income countries is positively associated with export flow from Pakistan, proving the complementary nature of exports from lower middle income countries and export flow from Pakistan.

In Table 2, I substitute the dependent variable in Table 1, the bilateral export flow with the ratio of bilateral exports from Pakistan to the total bilateral exports from South Asia. Financial dependence is positive and significant at the 1% level for OECD member countries and at the 10% level for pooled countries. Foreign lenders that provide loans to exporters in Pakistan have a relative greater influence on the borrowers in financially dependent industries to export to OECD member countries compared to foreign lenders in other South Asian economies. Asset tangibility is not significant for any set of countries. The lack of significance of asset tangibility may indicate that lack of presence of collateral within an industry does not influence the preference of exports from Pakistan. Contract intensity is negatively related with the ratio and significant at 1% level for all set of countries.

Capital intensity is negative and significant at 10% level for the pooled countries and 1% level for OECD member countries. Human capital intensity is negative and significant at 1% level for the pooled countries and non OECD countries. Natural resource intensity is positive and significant at 5% level for OECD member countries only, indicating that Pakistan's exports to OECD member countries are likely to be natural resource intensive than exports from other South Asian economies. Import demand elasticity is negative and significant at 1% level across the group of countries, implying that exports from Pakistan

are concentrated in industries that are likely to be sensitive to the increase in prices relative to exports from other South Asian economies. Import demand elasticity helps to control for any biases that may result on the ratio of exports from Pakistan due to differences in import tariffs as a result of trade agreements on goods exported from other economies in South Asia that may influence the price of the exported good. In addition, sum of exports from lower middle income economies negatively influences the exports from Pakistan relative to exports from South Asian economies for the pooled countries and non OECD countries at 1% level of significance. This variable is positive for OECD countries at 5% level of significance. As cumulative exports of South Asian economies are relatively large and likely to contribute a greater proportion to the sum of exports from lower middle economies, an increase in the sum of exports from lower middle income economies could imply less exports from Pakistan as a ratio to exports from South Asian economies. However, exports from Pakistan have a complementary nature related to exports from lower middle economies and are likely to be preferred over exports from other South Asian economies by the importers in OECD member countries.

In Table 3, financial dependence is positive and significant at 1% level for countries with middle level banking credit. Asset tangibility is not significant for any set of countries. Financial dependence influences exports from Pakistan to middle level banking credit countries, which can exhibit similar levels of financial development as Pakistan, but asset tangibility at the industry-level has no influence on export flow from Pakistan in high, middle and low banking credit countries. Contract intensity is negative and significant at 1% level across all set of countries. Capital intensity is negative and significant at 1% level for countries with high banking credit. Human capital intensity and natural resource intensity are negative and significant at 1% level for all set of countries, while import demand elasticity is negative and significant at 1% level for both high and low banking credit countries but significant at 5% level for middle level banking credit countries. Sum of exports from middle lower income level countries is positive and significant at 1% level for all set of countries.

In Table 4, financial dependence positively influences the ratio of exports from Pakistan relative to total exports from South Asian economies and is significant at 1% and 5% level for high and middle level banking credit countries respectively but negatively influences the ratio of exports from Pakistan and is significant at 1% level for low banking credit countries. On the other hand, asset tangibility positively influences the ratio at 1% level of significance for low banking credit countries. The negative effect of financial dependence and the positive effect of asset tangibility is likely to indicate that countries with less developed financial markets are less likely to generate export value for exports from Pakistan relative to exports

from other South Asian economies. As Pakistan has a relatively developed financial market within the South Asian economies, it is likely to attract foreign lenders from the developed financial markets that would prefer to invest in relatively less riskier markets. With foreign or larger lenders preferring that exporters in financially dependent industries in Pakistan export to the developed financial markets to generate a greater value for their exports, the financial dependence can negatively influence the ratio of exports from Pakistan to total exports from South Asian economies within low banking credit countries. With the assumption that the larger lenders are relatively more influential in Pakistan than other South Asian economies and play a more significant role in dictating the export flow, exporters are also likely to be firms with a greater percentage of tangible assets due to the presence of 'hard' information.

As shown in Appendix F.2, the average banking credit within Pakistan at 48% is higher than the average banking credit within other South Asian nations, which makes the financial markets within Pakistan relatively more developed. Exporters that require greater external financing needs from Pakistan may be relatively more reluctant to export to markets where importers do not have sufficient credit depth and do not provide the required export revenue to make them a viable destination for their exports. In addition, the preference of exporters from Pakistan to export in industries with high asset tangibility to countries with low banking credit may explain the greater influence of larger lenders, both domestic and foreign, in Pakistan as exporters with 'soft' information on their assets are provided less funding relative to similar firms in other South Asian economies. As I also observe in Table 1, larger lenders are likely to lend to exporters with 'hard' information on their assets which increases export flow as well as relative export flow to other South Asian economies for firms in industries with a greater proportion of tangible assets. Although negative, there is no significance on the influence of asset tangibility in high and middle banking credit countries as the degree of asset tangibility of industries may not be influential in determining the pattern of exports from Pakistan relative to total exports from South Asian economies to such trading partners. Importers in high and middle banking credit countries may not differentiate between the level of asset tangibility of exporters across the South Asian economies.

In Table 4, contract intensity is negative and significant at 1% level for high and middle bank credit countries and significant at 10% level for low bank credit countries. Capital intensity is negative and significant at 5% level for high bank credit countries, while human capital intensity observes a similar effect for middle and low bank credit countries. Natural resource intensity is positive and significant at 5% level for middle bank credit countries and negative and significant at 5% level for low bank credit countries. Import demand elasticity is negative and significant at 1% level for all three sets of countries, while the sum of exports

from lower middle income countries is negative and significant at 1% level for middle and low bank credit countries.

The results observed in Table 4 set a pattern for the preference of exports from Pakistan within the three different categories of countries based on the level of banking credit. For instance, the preference of exports from Pakistan to high banking credit countries is not influenced by the asset tangibility of the industries and neither by human capital intensity, natural resource intensity and sum of exports from lower middle income economies. However, the preference of exports from Pakistan to middle bank credit countries is influenced by all variables except asset tangibility and capital intensity. On the other hand, the preference of exports from Pakistan to low bank credit countries is influenced by all variables except capital intensity, while more interestingly, financial dependence and asset tangibility show an opposite sign to what is observed for the other categories of banking credit.

5.2.1 Including Banking Crisis

In Table 5, financial dependence is positive and significant at 1% level and 5% level for the pooled countries and OECD countries not facing a banking crisis respectively. Financial dependence is positive and significant at 5% level for non OECD countries, regardless of whether a country faces a crisis. Larger lenders are likely to lend to exporters in financially dependent industries that export to OECD member countries as such industries are likely to experience growth and the larger lenders with their more efficient monitoring of bank loans are able to extract greater profits by lending out to such industries. As financially dependent industries experience a larger number of exporters and a higher growth rate in exports, they are also likely to export to non OECD member countries. Exporters are not likely to export to OECD member countries that face a banking crisis. Credit supply from lenders that would normally contribute to lending in industries with potentially higher growth rates is constrained during this period. In addition, the lack of demand for imports within OECD member countries in financially dependent industries will also reduce exports in such industries. On the other hand, the non OECD countries are likely to demand exports in financially dependent industries regardless of whether they face a banking crisis. Financial dependence is positively associated with export flow between Pakistan and non OECD countries regardless of whether the importing countries face a banking crisis[11]. Surplus export

[11]Pakistan belongs within the range of countries with middle level of banking credit (between 25th and 75th percentile). As majority of the non OECD countries belong within the range of countries with middle and low banking credit, it is likely that Pakistan has similar or greater financial depth relative to other non OECD countries.

revenue generated by exporting to OECD member countries can allow firms in financially dependent industries in Pakistan to export to non OECD member countries.

Asset tangibility is negative and significant at 1% level for the pooled set of countries and non OECD countries facing a banking crisis but is positive and significant at 1% level for OECD member countries not facing a banking crisis. Levchenko et al (2010) also determines a negative and significant effect of asset tangibility on U.S. imports for the period between the second quarters of 2008 and 2009 and the results can closely relate to the imports to other developed financial markets. As asset tangibility indicates the presence of collateralizable assets in terms of 'hard' information, a positive value is likely to promote exports in industries where collateral is essential as foreign lenders are likely to lend to exporters that provide 'hard' information over 'soft' information. In addition, it is also likely that in developed economies, trade in intangible industries will be within domestic industries and between other developed OECD member countries that can more easily support the financing requirements of industries with a higher proportion of intangible assets, reducing the demand of imports within such industries from Pakistan. Aghion et al (2008) shows that R&D investments as a ratio of total investments tend to fall during the period when the country faces a credit crunch but does not necessarily increase proportionally during non banking crisis periods. Further, Booth et al (2001) suggests that long-term debt is likely to be positively associated with asset tangibility but short-term debt is likely to be negatively associated. As exporting activities may constitute long-term financing, this can explain the positive effect of asset tangibility on export flow within OECD member countries during the non-crisis period. On the other hand, in less developed countries with weaker property rights, collateral can be seized by relatively powerful lenders in case of default payments and this may exacerbate during a credit crunch. This can in turn reduce export flow in industries characterized by high asset tangibility. Exporters in Pakistan can fill the vacuum of production in financially dependent industries in developing economies[12]. However, during a credit crunch, firms may be less willing to export to industries where the importers are at a high risk of their assets being seized by the lenders due to weak property rights. When OECD member countries face a banking crisis, financial dependence and asset tangibility at the industry-level do not significantly influence the value of export flow from Pakistan. Therefore, this pattern can

[12]The onset of a banking crisis creates an output loss and lowers the supply of banking credit. As there has been no reported banking crisis in Pakistan during the sample period, I can assume that Pakistan as an exporting country has faced neither an output loss nor a credit crunch to the degree faced by the importing country when it experiences a banking crisis. Therefore, the export flow from Pakistan is affected but not the domestic production. The change in the composition of the industries based on financial factors is driven by the demand of foreign goods in the importing countries.

indicate that exports from Pakistan are likely to occur in any industry regardless of financial dependence and asset tangibility of industries as OECD members may face a credit crunch that limits the ability of firms to generate revenue from export sales. Hence, foreign lenders that may be suffering from their own decline in the ability to supply credit are less likely to provide loans to specific industries. However, as OECD members themselves may contain countries with both high and middle banking credit, the results in Table 7 will determine the influence when the group of importing countries is split according to the level of banking credit.

Contract intensity is negative and significant at 1% level for all set of countries except when OECD member countries are facing a banking crisis. Capital intensity is negative and significant at 5% and 1% level respectively for pooled and OECD member countries not facing a banking crisis. Human capital intensity is negative and significant at 1% level for all set of countries regardless of whether they face a banking crisis. Natural resource intensity is negative and significant at 1% level across all set of countries except for OECD member countries facing a banking crisis. Income demand elasticity is negative and significant between 1% level and 10% level across all set of countries and the sum of exports from lower middle income countries is positive and significant at 1% level across all set of countries. Therefore, we can predict that all variables except for capital intensity is likely to influence export flow, either negatively of positively across all set of countries. However, when an OECD countries faces a banking crisis, the only variables that have influence are human capital intensity, import demand elasticity and sum of exports from lower middle income countries.

In Table 6, financial dependence influences the ratio of export flow from Pakistan to total export flow from South Asian economies positively and significantly at 10% level for the pooled set of countries regardless of whether they face a banking crisis. Within OECD member countries, the ratio is positively and significantly influenced at 1% level if the countries do not face a banking crisis. Within non OECD countries, the ratio is positively and significantly influenced at 10% level if the countries do face a banking crisis. Asset tangibility does not influence the ratio across all set of countries regardless of a banking crisis. Contract intensity influences the ratio negatively and significantly at 1% level for all set of countries except for OECD member countries facing a banking crisis. Capital intensity influences the ratio negatively and significantly at 5% level for pooled set of countries and non OECD countries facing a banking crisis but influences the ratio negatively and significantly at 1% level within OECD member countries not facing a banking crisis. Human capital intensity is negative and significant at 1% level within pooled set of countries and within non OECD

countries not facing a crisis. Natural resource intensity is positive and significant at 5% level and 10% level within pooled set of countries and OECD member countries respectively. Import demand elasticity is negative and significant at 1% level across all set of countries regardless of whether they face a crisis. Sum of exports from lower middle income economies influences the ratio negatively and significantly at 1% level for pooled set of countries and non OECD countries that do not face a banking crisis and negatively influences the ratio at 10% level within the non OECD member countries that do face a banking crisis. The effect is positive and significant at 5% level for OECD member countries that do not face a banking crisis.

Interestingly, the only variable to influence the ratio within OECD member countries that face a banking crisis is import demand elasticity. The preference for exports from Pakistan is not influenced by any of the financial characteristics at the industry-level by such countries. Similarly, asset tangibility has no effect on the preference of exports from Pakistan. Financial dependence positively influences the preference of export flow from Pakistan when importing OECD member countries are not facing a banking crisis and non OECD member are facing a banking crisis. With contract intensity having a negative influence, the preference of export flow from Pakistan is likely to be in industries where trade is likely to be exchanged in a spot market. Therefore, the development of financial markets that can promote the growth of financially developed industries will likely increase the preference of exports from Pakistan given that products are exchanged in a spot market, particularly for importing OECD member countries not facing a banking crisis and importing non OECD countries facing a banking crisis.

In Table 7, financial dependence positively and significantly influences export flow at 1% level for middle banking credit countries that do not face a banking crisis, similar to the result observed in Table 3. Asset tangibility negatively and significantly influences export flow for both high banking credit countries at 10% level and middle banking credit countries at 5% level that face a banking crisis. The effect of financial dependence and asset tangibility is consistent with Rajan and Zingales (1998) and Levchenko et al (2010). The former predicts growth in financially dependent industries as banking credit increases and the latter reveals that the imports into the U.S. are negatively impacted by asset tangibility during a banking crisis. With the U.S. financial market comparable to other developed markets with higher levels of banking credit, the relationship is expected to be similar for other importing countries. Importers within high banking credit countries not facing a banking crisis are likely to increase export flow from financially dependent industries within Pakistan. However, when such countries face a banking crisis, the credit crunch within their

financial markets may influence a negative relationship between asset tangibility and export flow. Contract intensity negatively and significantly influences export flow at 1% level for all set of countries except for high banking credit and low banking credit countries facing a banking crisis at 10% level and 5% level.

Capital intensity negatively and significantly influences export flow at 1% level for countries with high banking credit that do not face a banking crisis, which is similar to the result observed in Table 3. Human capital intensity negatively and significantly influences export flow at 1% level except for low bank credit countries not facing a banking crisis. Natural resource intensity negatively and significantly influences export flow at 1% level for low bank credit countries regardless of them facing a banking crisis, high banking credit countries and middle banking credit countries not facing a banking crisis. This variable negatively influences high banking credit countries facing a banking crisis at 5% level and middle bank credit countries facing a banking crisis at 10% level. Income elasticity demand negatively and significantly influences export flow at 1% level for high banking credit countries and low banking credit countries not facing a banking crisis and significantly influences export flow at 5% level for the remaining group of countries. Sum of exports from lower middle income countries positively and significantly influences export flow at 1% level across all group of countries.

In Table 8, financial dependence positively and significantly influences the ratio of exports from Pakistan to the total exports from South Asian nations within high and middle banking credit countries not facing a banking crisis at 1% and 5% level respectively. It also positively and significantly influences the ratio at 10% level within low banking credit countries facing a banking crisis. On the other hand, financial dependence negatively and significantly influences the ratio at 1% level within countries with low banking credit and are not facing a banking crisis. Asset tangibility negatively and significantly influences the ratio at 10% level within countries with high banking credit facing a banking crisis, and it positively and significantly influences the ratio at 1% level within countries with low banking credit not facing a banking crisis. In Table 8, I observe a similar relationship for financial dependence and asset tangibility within countries with low bank credit as observed in Table 4. With positive influence of financial dependence on the ratio of exports from Pakistan to total exports from South Asian economies within both high and middle credit countries not facing a banking crisis and the negative effect within low banking credit countries that are not facing a banking crisis implies that loans in such industries to exporters from Pakistan are likely to increase relative export flow from Pakistan in high and middle banking credit countries. However, it will also decrease relative export flow from Pakistan to low banking credit

countries during periods when the importing country is not facing a banking crisis. This trend in relative size of exports may be explained by the level of development of the financial markets in Pakistan compared to other countries in the region as Pakistan on average has one of deepest credit markets in the region characterized with large domestic lenders and foreign lenders. The pattern of financial markets in Pakistan is likely to attract lenders to finance production for exports from Pakistan relative to other South Asian economies to the developed financial markets.

6 Conclusion

The positive influence of financial dependence and the negative influence of asset tangibility on the export value indicates that exports are likely to increase with financial dependence of an industry but decrease with its level of asset tangibility. Therefore, industries with more liquidity needs and higher demand for external finance may generate greater export value. This pattern seems to hold for importing partners with developed financial markets, indicated by the high and middle level of banking credit. In financially developed countries, industries with higher financial dependence are likely to grow faster than the industries with lower financial dependence, particularly during the period when the country is not facing an episode of a banking crisis. This relation can explain the effect of industry financial dependence on export flow from Pakistan within financially developed countries. Further, the influence of financial dependence on the ratio of exports from Pakistan to total exports from South Asian economies is significant for OECD member countries and the range of countries with high and middle banking credit during the period when such countries are not facing a banking crisis. This indicates that the financial market of Pakistan is likely to provide a greater proportion of export value in industries that are more financially dependent in economies where markets are relatively financially developed. However, the negative influence of asset tangibility when the importing country faces a banking crisis points to growth in export value in industries that are likely to have 'soft' information. Lenders are willing to fund borrowers with a lower proportion of tangible assets when the importing country is facing a banking crisis as consumers in those industries may substitute domestically produced products with imported products from countries that do not face a banking crisis due to the reduction in domestic production.

Exporters in Pakistan belong to a relatively developed financial market compared to countries with a lower supply of banking credit and other South Asian economies. As the importing countries with lower levels of financial development, such as non OECD countries,

face a banking crisis that can deteriorate the availability of credit to financially dependent industries as well as industries with lower asset tangibility, the probability that the collateral of the borrower within such industries in such countries is likely to be seized by the lender may increase. The latter reason can reduce the willingness of exporters in Pakistan to trade with firms that are less likely to survive as lenders may seize collateral. The shortage of credit in the importing country may allow exporters from Pakistan to fill the vacuum in supply of products in certain industries as the less financially developed markets are unlikely to get financing from lenders that prefer more robust financial markets. However, during periods when there is no banking crisis, the preference of exports from Pakistan is likely to increase in industries with a greater proportion of tangible assets within countries with low banking credit but decrease during periods of banking crisis within countries with high banking credit. In summary, with a greater level of development in the financial markets in Pakistan relative to other South Asian countries, I observe a positive influence of financial dependence and negative influence of asset tangibility on the preference of exports from Pakistan to importing countries with developed financial markets but observe a negative influence of financial dependence and a positive influence of asset tangibility to importing countries with less developed financial markets. This pattern may indicate the priority of exporters as those that have the capacity to obtain larger amounts of external funding or possess 'soft' information are likely to increase the relative flow of exports to industries in importing countries that are financially developed.

I suggest to the policymakers that given the level of development of the financial market in Pakistan compared to other developing financial markets, they should promote exports in financially dependent industries as well as industries with a lower proportion of tangible assets as such industries are likely to not only increase in export value but have a positive impact on the preference of exports from Pakistan relative to the exports from other South Asian countries. This pattern is likely to hold for importing countries with the level of financial development, measured in terms of domestic credit provided by banking sector as a percentage of GDP, that is relatively better or equal to that observed in Pakistan. Although, the banking crisis does impact the pattern of exports from Pakistan, the financially dependent industries and the industries with lower asset tangibility will generate not only greater export value but also increase the preference of exports from Pakistan relative to other South Asian countries as importing countries tend to suffer from macroeconomic volatility. Therefore, it is highly imperative for Pakistan to maintain or improve the level of development in the financial markets that has allowed its exports to generate value, particularly in industries that are likely to grow with the level of development in the financial market.

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Figures and Tables

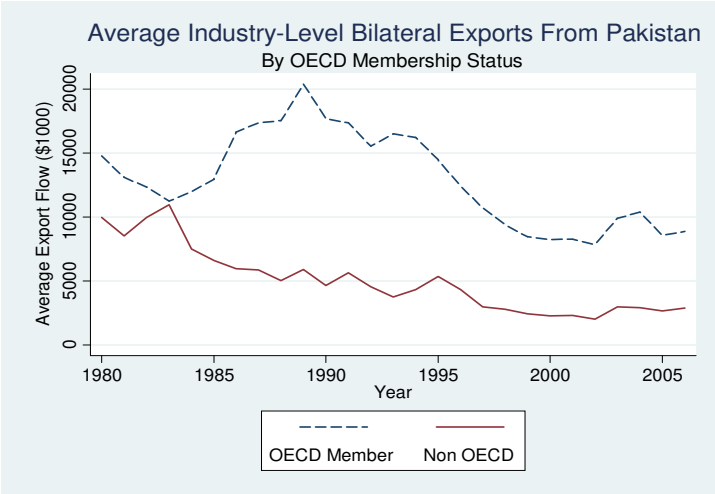


Figure 1: Average Industry-Level Bilateral Exports From Pakistan By OECD Membership Status

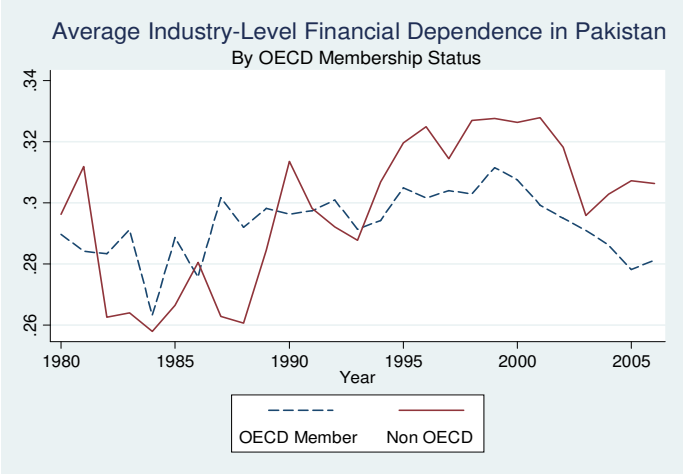


Figure 2: Average Industry-Level Financial Dependence in Pakistan by OECD Membership Status of Importers

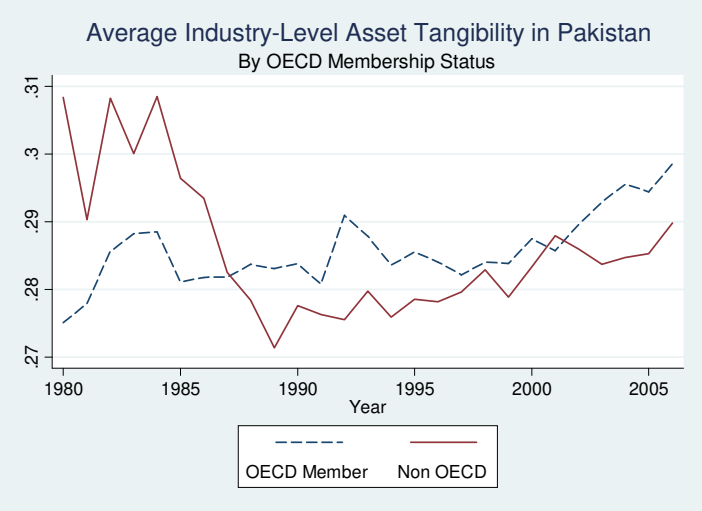


Figure 3: Average Industry-Level Asset Tangibility in Pakistan by OECD Membership Status of Importers

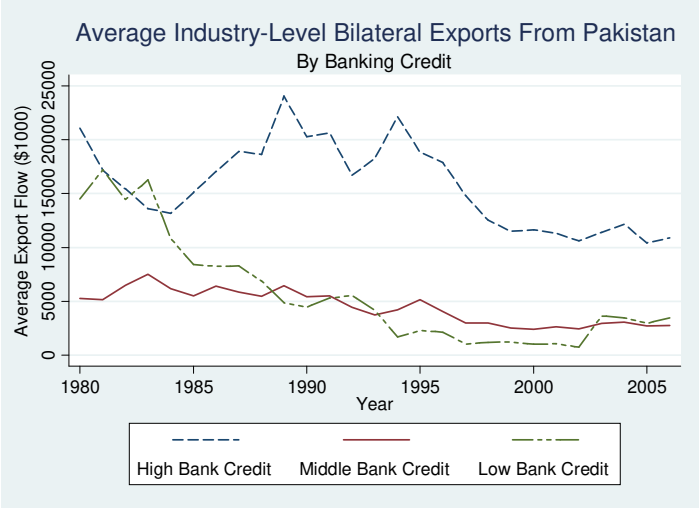


Figure 4: Average Industry-Level Bilateral Exports From Pakistan

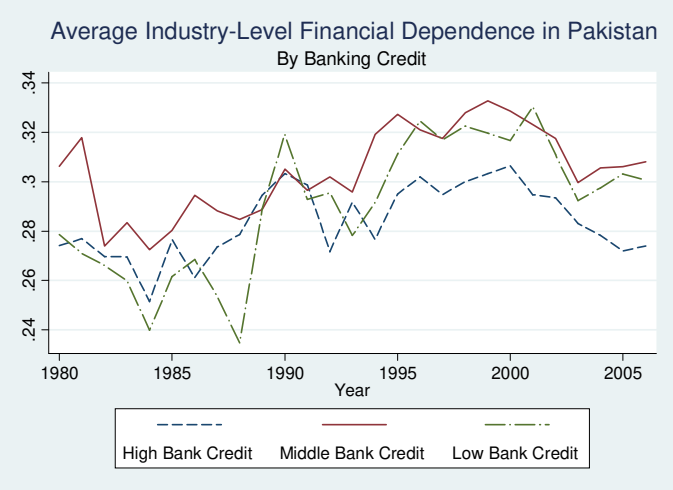


Figure 5: Average Industry-Level Financial Dependence in Pakistan by Banking Credit

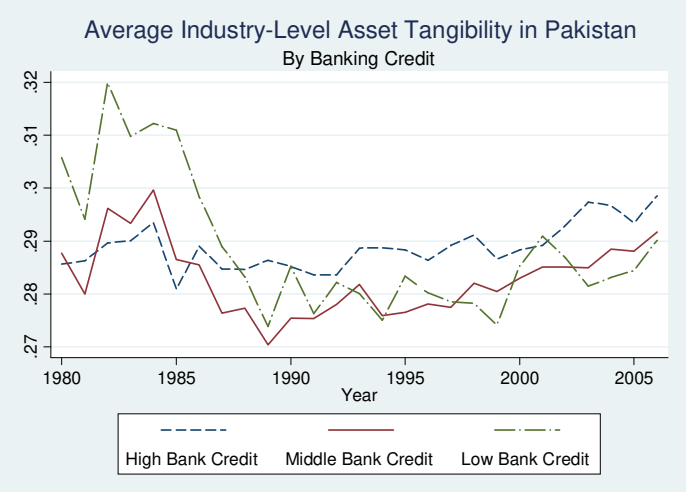


Figure 6: Average Industry-Level Asset Tangibility in Pakistan by Banking Credit

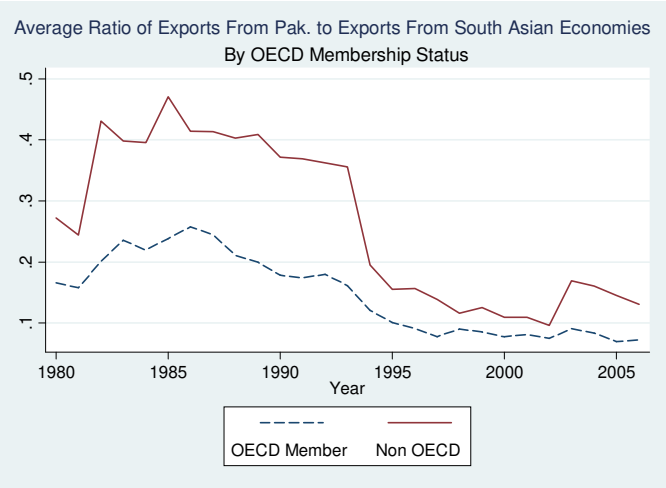


Figure 7: Average Ratio of Exports From Pakistan to Exports From South Asian Economies by OECD Membership Status of Importers

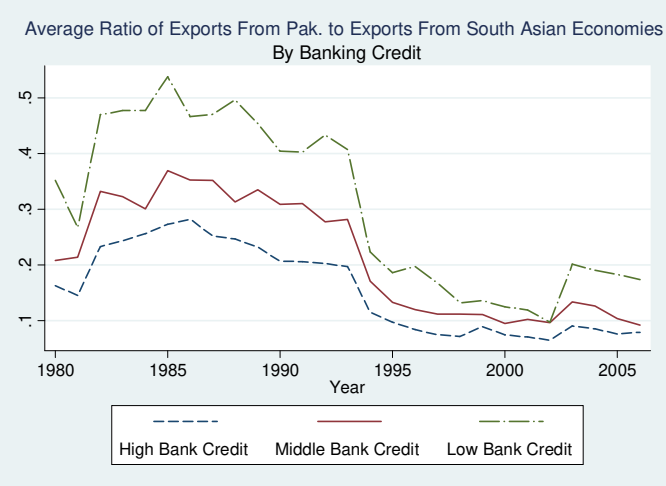


Figure 8: Average Ratio of Exports From Pakistan to Exports From South Asian Economies by Banking Credit

	Pooled	OECD Member	Non OECD
	(1)	(2)	(3)
Dep. Variable: Export Flow (ln)			
Financial Dependence	0.32***	0.36*	0.34**
	(0.11)	(0.20)	(0.13)
Asset Tangibility	-0.42	1.60**	-0.87
	(0.44)	(0.61)	(0.54)
Contract Intensity	-1.92***	-1.45***	-2.40***
	(0.21)	(0.33)	(0.26)
Capital Intensity	-6.58**	-22.82***	-1.23
	(2.98)	(4.35)	(3.19)
Human Capital Intensity	-1.87***	-1.32***	-1.76***
	(0.16)	(0.24)	(0.18)
Natural Resource Intensity	-1.44***	-1.38***	-1.50***
	(0.10)	(0.17)	(0.13)
Import Demand Elasticity	-0.09**	-0.33***	-0.07**
	(0.03)	(0.07)	(0.03)
Sum of Exports from Lower Middle	0.67***	0.93***	0.55***
Income Economies (ln)	(0.04)	(0.03)	(0.05)
Constant	1.49***	-1.48**	2.16***
	(0.32)	(0.58)	(0.41)
Observations	31,044	10,452	20,125
R-squared	0.45	0.51	0.41

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects.

Export flow and sum of exports have been adjusted at 2005 CPI

Table 1: The Effects of Financial Characteristics on Export Flow From Pakistan By OECD Membership Status of Importing Countries

	(1)	(2)	(3)
	Pooled	OECD Member	Non OECD
Dep. Variable: Ratio of Pak's Exports to South Asia's Exports			
Financial Dependence	0.02*	0.08***	-0.00
	(0.01)	(0.02)	(0.02)
Asset Tangibility	0.02	-0.03	0.06
	(0.04)	(0.06)	(0.06)
Contract Intensity	-0.13***	-0.13***	-0.15***
	(0.02)	(0.03)	(0.03)
Capital Intensity	-0.42*	-1.03***	-0.37
	(0.24)	(0.32)	(0.32)
Human Capital Intensity	-0.07***	-0.00	-0.08***
	(0.02)	(0.03)	(0.02)
Natural Resource Intensity	-0.00	0.03**	-0.01
	(0.01)	(0.01)	(0.02)
Import Demand Elasticity	-0.01***	-0.07***	-0.01***
	(0.01)	(0.02)	(0.00)
Sum of Exports from Lower Middle	-0.01***	0.01**	-0.02***
Income Economies (ln)	(0.00)	(0.00)	(0.00)
Constant	0.71***	0.18***	0.65***
	(0.03)	(0.05)	(0.05)
Observations	31,044	10,452	20,125
R-squared	0.24	0.15	0.27

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects.

Export flow and sum of exports have been adjusted at 2005 CPI

Table 2: The Effects of Financial Characteristics on Ratio of Exports From Pakistan to Total Exports From South Asian Economies By OECD Membership Status of Importing Countries

	(1)	(2)	(3)
Average Banking Credit Level:	High	Middle	Low
Dep. Variable: Export Flow (ln)			
Financial Dependence	0.02	0.50***	0.16
	(0.22)	(0.18)	(0.18)
Asset Tangibility	1.06	-1.14	0.46
	(0.80)	(0.71)	(0.79)
Contract Intensity	-1.81***	-2.03***	-2.02***
	(0.43)	(0.26)	(0.42)
Capital Intensity	-18.20***	-4.11	-3.37
	(4.55)	(4.92)	(4.35)
Human Capital Intensity	-1.20***	-1.97***	-1.87***
	(0.16)	(0.24)	(0.30)
Natural Resource Intensity	-1.74***	-1.09***	-1.87***
	(0.20)	(0.14)	(0.17)
Import Demand Elasticity	-0.35***	-0.06**	-0.24***
	(0.08)	(0.03)	(0.08)
Sum of Exports from Lower Middle	0.92***	0.57***	0.64***
Income Economies (ln)	(0.04)	(0.06)	(0.06)
Constant	0.42	2.90***	2.43***
	(0.64)	(0.71)	(0.56)
Observations	8,289	14,966	7,299
R-squared	0.51	0.37	0.51

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects.

Export flow and sum of exports have been adjusted at 2005 CPI

High is Greater than 75th percentile, Middle is between 75th and 25th percentile and Low is less than 25th percentile of average banking credit

Table 3: The Effects of Financial Characteristics on Export Flow From Pakistan By Banking Credit of Importing Countries

	(1)	(2)	(3)
Average Banking Credit Level:	High	Middle	Low
Dep. Variable: Ratio of Pak's Exports to South Asia's Exports			
Financial Dependence	0.05***	0.05**	-0.06***
	(0.02)	(0.02)	(0.02)
Asset Tangibility	-0.04	-0.05	0.25***
	(0.07)	(0.07)	(0.08)
Contract Intensity	-0.17***	-0.14***	-0.10*
	(0.03)	(0.02)	(0.06)
Capital Intensity	-0.66**	-0.37	-0.71
	(0.28)	(0.37)	(0.62)
Human Capital Intensity	-0.04	-0.07**	-0.10**
	(0.03)	(0.03)	(0.05)
Natural Resource Intensity	0.00	0.04**	-0.06**
	(0.02)	(0.02)	(0.02)
Import Demand Elasticity	-0.08***	-0.01***	-0.05***
	(0.02)	(0.00)	(0.01)
Sum of Exports from Lower Middle	0.00	-0.01***	-0.02***
Income Economies (ln)	(0.00)	(0.00)	(0.00)
Constant	0.41***	0.44***	0.79***
	(0.06)	(0.06)	(0.08)
Observations	8,289	14,966	7,299
R-squared	0.21	0.23	0.29

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects.

Export flow and sum of exports have been adjusted at 2005 CPI

High is Greater than 75th percentile, Middle is between 75th and 25th percentile and Low is less than 25th percentile of average banking credit

Table 4: The Effects of Financial Characteristics on Ratio of Exports From Pakistan to Total Exports From South Asian Economies By Banking Credit of Importing Countries

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled		OECD Member		Non OECD	
Banking Crisis:	No	Yes	No	Yes	No	Yes
Dep. Variable: Export Flow (ln)						
Financial Dependence	0.32***	0.40	0.43**	-0.62	0.32**	0.76**
	(0.11)	(0.32)	(0.19)	(0.50)	(0.13)	(0.37)
Asset Tangibility	-0.24	-3.70***	1.78***	-1.16	-0.65	-4.77***
	(0.43)	(1.15)	(0.61)	(1.44)	(0.53)	(1.44)
Contract Intensity	-1.89***	-2.89***	-1.50***	-0.55	-2.32***	-3.92***
	(0.21)	(0.57)	(0.33)	(0.76)	(0.26)	(0.61)
Capital Intensity	-7.00**	-5.15	-23.84***	-6.97	-1.43	-2.84
	(2.98)	(6.17)	(4.06)	(10.17)	(3.20)	(7.28)
Human Capital Intensity	-1.83***	-1.98***	-1.25***	-2.42***	-1.73***	-1.70***
	(0.15)	(0.32)	(0.24)	(0.62)	(0.18)	(0.35)
Natural Resource Intensity	-1.47***	-0.86***	-1.41***	-0.77	-1.52***	-0.95***
	(0.10)	(0.26)	(0.16)	(0.58)	(0.13)	(0.27)
Import Demand Elasticity	-0.08**	-0.76***	-0.30***	-0.69*	-0.07**	-0.74***
	(0.03)	(0.20)	(0.06)	(0.33)	(0.03)	(0.25)
Sum of Exports from Lower Middle	0.69***	0.53***	0.95***	0.77***	0.56***	0.45***
Income Countries	(0.04)	(0.06)	(0.03)	(0.07)	(0.05)	(0.06)
Constant	1.31***	2.68**	-1.15*	2.84**	2.80***	4.89***
	(0.32)	(1.24)	(0.60)	(1.07)	(0.56)	(1.12)
Observations	29,022	2,022	9,884	568	18,676	1,449
R-squared	0.46	0.38	0.52	0.44	0.42	0.37

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects

Export flow and sum of exports have been adjusted to 2005 CPI

Table 5: The Effects of Financial Characteristics on Export Flow From Pakistan By OECD Membership Status and Banking Crisis of Importing Countries

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled		OECD Member		Non OECD	
Banking Crisis	No	Yes	No	Yes	No	Yes
Dep. Variable: Ratio of Pak's Exports to South Asia's Exports						
Financial Dependence	0.02*	0.07*	0.09***	0.00	-0.01	0.09*
	(0.01)	(0.04)	(0.02)	(0.06)	(0.02)	(0.05)
Asset Tangibility	0.03	-0.15	-0.02	-0.20	0.07	-0.11
	(0.04)	(0.14)	(0.06)	(0.20)	(0.05)	(0.19)
Contract Intensity	-0.12***	-0.25***	-0.13***	-0.13	-0.14***	-0.30***
	(0.02)	(0.05)	(0.03)	(0.07)	(0.03)	(0.07)
Capital Intensity	-0.34	-1.81**	-1.05***	-0.64	-0.25	-2.27**
	(0.23)	(0.83)	(0.30)	(1.13)	(0.31)	(1.11)
Human Capital Intensity	-0.08***	0.00	0.00	-0.04	-0.09***	0.03
	(0.02)	(0.05)	(0.03)	(0.07)	(0.02)	(0.06)
Natural Resource Intensity	-0.00	0.06*	0.03**	0.06	-0.01	0.06
	(0.01)	(0.03)	(0.01)	(0.06)	(0.02)	(0.04)
Import Demand Elasticity	-0.01***	-0.09***	-0.06***	-0.13***	-0.01***	-0.08***
	(0.00)	(0.02)	(0.02)	(0.03)	(0.00)	(0.02)
Sum of Exports from Lower Middle	-0.01***	-0.01	0.01***	0.01	-0.02***	-0.01*
Income Countries	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Constant	0.70***	0.98***	0.14**	0.32**	0.53***	1.10***
	(0.03)	(0.09)	(0.05)	(0.11)	(0.06)	(0.10)
Observations	29,022	2,022	9,884	568	18,676	1,449
R-squared	0.24	0.36	0.16	0.12	0.27	0.40

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects

Export flow and sum of exports have been adjusted to 2005 CPI

Table 6: The Effects of Financial Characteristics on Ratio of Exports From Pakistan to Total Exports From South Asian Economies By OECD Membership Status and Banking Crisis of Importing Countries

	(1)	(2)	(3)	(4)	(5)	(6)
Average Banking Credit Level:	High		Middle		Low	
Banking Crisis:	No	Yes	No	Yes	No	Yes
Dep. Variable: Export Flow (ln)						
Financial Dependence	0.06	-0.36	0.51***	0.50	0.15	0.69
	(0.20)	(0.83)	(0.18)	(0.40)	(0.18)	(0.46)
Asset Tangibility	1.27	-3.21*	-0.95	-3.70**	0.54	-1.64
	(0.79)	(1.68)	(0.71)	(1.63)	(0.77)	(3.58)
Contract Intensity	-1.73***	-3.49*	-2.03***	-2.65***	-2.02***	-2.49**
	(0.42)	(1.71)	(0.27)	(0.60)	(0.42)	(1.20)
Capital Intensity	-19.01***	-4.95	-4.50	-4.93	-3.43	-17.52
	(4.38)	(6.68)	(4.99)	(8.71)	(4.30)	(16.23)
Human Capital Intensity	-1.14***	-2.08***	-1.92***	-2.11***	-1.86***	-0.79
	(0.17)	(0.41)	(0.24)	(0.43)	(0.30)	(0.89)
Natural Resource Intensity	-1.77***	-1.18**	-1.10***	-0.67*	-1.88***	-2.10***
	(0.20)	(0.48)	(0.14)	(0.37)	(0.16)	(0.61)
Import Demand Elasticity	-0.31***	-0.86**	-0.06**	-0.72**	-0.23***	-1.10**
	(0.09)	(0.31)	(0.03)	(0.29)	(0.07)	(0.53)
Sum of Exports from Lower Middle	0.93***	0.74***	0.58***	0.49***	0.65***	0.51***
Income Economies (ln)	(0.04)	(0.06)	(0.06)	(0.08)	(0.05)	(0.10)
Constant	0.15	3.24*	2.63***	2.87**	1.98***	5.32***
	(0.57)	(1.47)	(0.71)	(1.18)	(0.59)	(1.04)
Observations	7,862	427	13,686	1,280	6,984	315
R-squared	0.51	0.48	0.38	0.34	0.52	0.44

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects.

Export flow and sum of exports have been adjusted at 2005 CPI

High is Greater than 75th percentile, Middle is between 75th and 25th percentile

and Low is less than 25th percentile of average banking credit

Table 7: The Effects of Financial Characteristics on Export Flow From Pakistan By Banking Credit and Banking Crisis of Importing Countries

	(1)	(2)	(3)	(4)	(5)	(6)
Average Banking Credit Level:	High		Middle		Low	
Banking Crisis:	No	Yes	No	Yes	No	Yes
Dep. Variable: Ratio of Pak's Exports to South Asia's Exports						
Financial Dependence	0.05***	0.05	0.05**	0.06	-0.07***	0.13*
	(0.02)	(0.07)	(0.02)	(0.05)	(0.02)	(0.07)
Asset Tangibility	-0.01	-0.49*	-0.06	-0.06	0.26***	0.19
	(0.07)	(0.22)	(0.07)	(0.17)	(0.07)	(0.70)
Contract Intensity	-0.16***	-0.18**	-0.14***	-0.20***	-0.08	-0.67**
	(0.03)	(0.08)	(0.03)	(0.06)	(0.05)	(0.27)
Capital Intensity	-0.72**	0.93*	-0.27	-1.82*	-0.51	-7.85**
	(0.29)	(0.47)	(0.37)	(1.06)	(0.59)	(3.19)
Human Capital Intensity	-0.04	-0.11**	-0.07***	-0.00	-0.10**	0.24
	(0.03)	(0.04)	(0.03)	(0.06)	(0.05)	(0.17)
Natural Resource Intensity	0.00	0.04	0.04**	0.05	-0.07***	0.16
	(0.02)	(0.03)	(0.02)	(0.05)	(0.02)	(0.12)
Import Demand Elasticity	-0.08***	-0.13***	-0.01***	-0.09***	-0.05***	-0.06
	(0.02)	(0.02)	(0.00)	(0.02)	(0.01)	(0.07)
Sum of Exports from Lower Middle	0.00	-0.00	-0.01***	-0.01	-0.02***	-0.01
Income Economies (ln)	(0.01)	(0.01)	(0.00)	(0.01)	(0.00)	(0.02)
Constant	0.51***	1.12***	0.43***	-0.03	0.87***	2.11***
	(0.06)	(0.11)	(0.06)	(0.18)	(0.08)	(0.25)
Observations	7,862	427	13,686	1,280	6,984	315
R-squared	0.21	0.41	0.23	0.30	0.29	0.42

Robust clustered standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Includes importer and year fixed effects.

Export flow and sum of exports have been adjusted at 2005 CPI

High is Greater than 75th percentile, Middle is between 75th and 25th percentile

and Low is less than 25th percentile of average banking credit

Table 8: The Effects of Financial Characteristics on Ratio of Exports From Pakistan to Total Exports From South Asian Economies By Banking Credit and Banking Crisis of Importing Countries

Appendix

Appendix A

Description of Variables			
Variable	**Definition**	**Source**	
Export Flow	Bilateral Export Flow at 3 digit ISIC level	De Sousa et al. (2012)	
Financial Dependence	Ratio of capital expenditures less cash flow from operations to capital expenditures for a median firm in an industry	Manova (2008)	
Asset Tangibility	Ratio of net property, plant and equipment to total book value of assets for a median firm in an industry	Manova (2008)	
Contract Intensity	Fraction of inputs neither sold on an exchange nor reference priced	Nunn (2007)	
Capital Intensity	Median of gross capital formation to value added ratio for each industry	Braun (2003)	
Human Capital Intensity	Industry's mean wage over that of the whole manufacturing sector	Braun (2003)	
Natural Resource Intensity	If industry includes the use of minerals and fossil fuels, timber, non-timber forest benefits, cropland, and pastureland as main input	Braun (2003)	
Import Demand Elasticity	Constructed with a GDP function, using import and domestic prices of *n* good and import shares of *n* good in GDP.	Nicita and Olarreaga (2006) and Kee et al. (2004)	
Sum of Exports From Lower Middle Income Countries	Sum of Bilateral Export Flow at 3 digit ISIC level from Lower Middle Income Countries	De Sousa et al. (2012)	
Banking Credit	Domestic credit by banking sector (% of GDP) to all sectors except central govt	World Development Indicators (2012)	
Banking Crisis	Two conditions need to be met: a) Significant signs of distress in the banking system through bank runs, liquidation and losses and b) Significant policy intervention in response to the distress.	Laeven and Valencia (2010)	
Note: Financial dependence, asset tangibility, capital intensity, human capital intensity and natural resource intensity are defined at 3 digit ISIC Rev 2 and are borrowed from US data.			

Appendix A: Description of Variables

Appendix B

OECD Member Countries	
Country Name	**Note**
Australia	
Austria	
Belgium-Luxemburg	
Canada	
Czech Republic	Member since 1995
Denmark	
Finland	
France	
Germany	
Greece	
Hungary	Member since 1996
Iceland	
Ireland	
Italy	
Japan	
Korea	Member since 1996
Mexico	Member since 1994
Netherlands	
New Zealand	
Norway	
Poland	Member since 1996
Portugal	
Slovakia	Member since 2000
Spain	
Sweden	
Switzerland	
Turkey	
United Kingdom	

Appendix B.1: OECD Member Countries

Appendix B.2: Sorting Countries According to Average Banking Credit from 1980 to 2006.(High is greater than 75th percentile, Middle is between 25th and 75th percentile and Low is less than or equal to 25th percentile).

High Banking Credit Countries: Austria, Canada, China, Cyprus, Eritrea, France, Germany, Guyana, Hong Kong, Japan, Lebanon, Liberia, Malaysia, Malta, Netherlands, Portugal, Saint Kitts and Nevis, South Africa, Spain, Sweden, Switzerland, Thailand, United Kingdom

Middle Banking Credit Countries: Albania, Algeria, Argentina, Aruba, Australia, Bahamas, Bangladesh, Barbados, Belgium-Luxemburg, Belize, Bolivia, Bosnia and Herzegovina, Brazil, Bulgaria, Cape Verde, Chile, Colombia, Costa Rica, Croatia, Czech Republic, Djibouti, Denmark, Dominican Republic, Egypt, El Salvador, Estonia, Ethiopia, Fiji, Finland, Greece, Grenada, Haiti, Honduras, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Jamaica, Jordan, Kenya, Kuwait, Latvia, Macao, Maldives, Mauritania, Mauritius, Mexico, Moldova, Morocco, Myanmar, Nepal, New Zealand, Nicaragua, Norway, Panama, Philippines, Poland, Republic of Korea, Qatar, Saint Lucia, Saint Vincent and the Grenadines, Seychelles, Sierra Leone, Singapore, Slovak Republic, Slovenia, Sri Lanka, Syria, Trinidad and Tobago, Tonga, Tunisia, Turkey, Uruguay, Vietnam, Vanautu, Zambia, Zimbabwe

Low Banking Credit Countries: Afghanistan, Angola, Armenia, Azerbaijan, Bahrain, Belarus, Benin, Bhutan, Brunei Darussalam, Burkina Faso, Burundi, Cambodia, Cameroon, Central African Republic, Chad, Comoros, Cote D' Ivoire, Dem. Republic of Congo, Ecuador, Equatorial Guinea, Fed. States of Micronesia, Gabon, Gambia, Georgia, Ghana, Guinea, Guinea-Bissau, Iraq, Kazakhastan, Kyrgyz Republic, Laos, Libya, Lithuania, Macedonia, Madagascar, Malawi, Mali, Mongolia, Mozambique, Niger, Nigeria, Oman, Papua New Guinea, Paraguay, Peru, Republic of Congo, Romania, Russia, Rwanda, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Serbia, Solomon Islands, Sudan, Tajikistan, Tanzania, Timor Portuguese, Togo, Turkmenistan, Uganda, Ukraine, United Arab Emirates, Venezuela, Yemen

List of Lower Middle Income Economies	
Defined by World Bank (2012)	
Albania	Moldova
Armenia	Mongolia
Belize	Morocco
Bhutan	Nicaragua
Bolivia	Nigeria
Cameroon	Pakistan
Cape Verde	Papua New Guinea
Congo, Rep.	Paraguay
Cote d'Ivoire	Philippines
Djibouti	Samoa
Egypt, Arab Rep.	Sao Tome and Principe
El Salvador	Senegal
Fiji	Solomon Islands
Georgia	South Sudan
Ghana	Sri Lanka
Guatemala	Sudan
Guyana	Swaziland
Honduras	Syrian Arab Republic
India	Timor-Leste
Indonesia	Tonga
Iraq	Ukraine
Kiribati	Uzbekistan
Kosovo	Vanuatu
Lao PDR	Vietnam
Lesotho	West Bank and Gaza
Marshall Islands	Yemen, Rep.
Micronesia, Fed. Sts.	Zambia
Note: Lower middle income economies have a	
2011 GNI per capita of $1,026- $4,035	

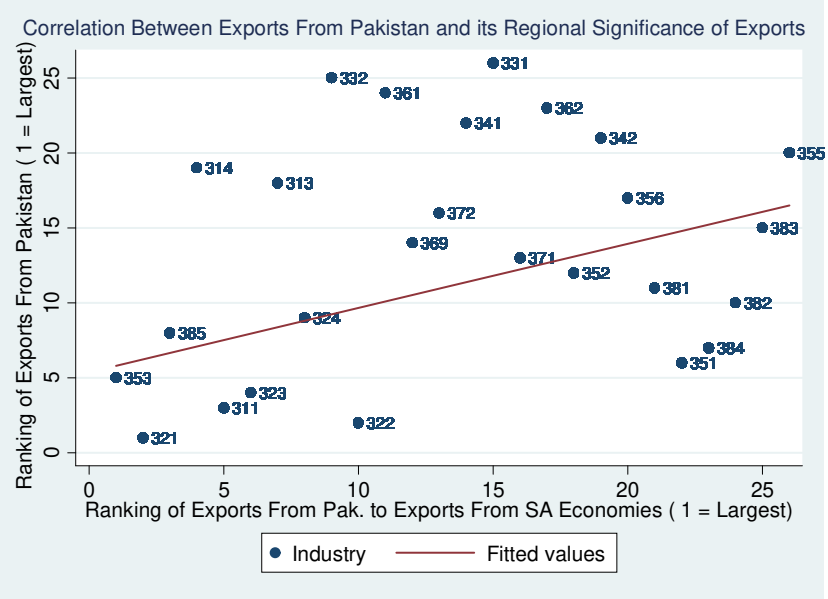
Appendix B.3: List of Lower Middle Income Countries as Classified by the World Bank

Appendix C

	Ranking of Cumulative Bilateral Exports From Pakistan By Industry (1980-2006)				
		Adjusted for 2005 CPI			
Ranking	ISIC Rev 2	Sector Description	Ranking	ISIC Rev 2	Sector Description
1	321	Manufacture of textiles	14	369	Manufacture of other non-metallic mineral products
2	322	Manufacture of wearing apparel, except footwear	15	383	Manufacture of electrical machinery apparatus, appliances and supplies
3	311	Food manufacturing	16	372	Non-ferrous metal basic industries
4	323	Manufacture of leather and products of leather	17	356	Manufacture of plastic products not elsewhere classified
5	353	Petroleum refineries	18	313	Beverage industries
6	351	Manufacture of industrial chemicals	19	314	Tobacco manufactures
7	384	Manufacture of transport equipment	20	355	Manufacture of rubber products
8	385	Manufacture of professional and scientific equipment	21	342	Printing, publishing and allied industries
9	324	Manufacture of footwear	22	341	Manufacture of paper and paper products
10	382	Manufacture of machinery except electrical	23	362	Manufacture of glass and glass products
11	381	Manufacture of fabricated metal products	24	361	Manufacture of pottery, china and earthenware
12	352	Manufacture of other chemical products	25	332	Manufacture of furniture and fixtures
13	371	Iron and steel basic industries	26	331	Manufacture of wood and wood and cork products

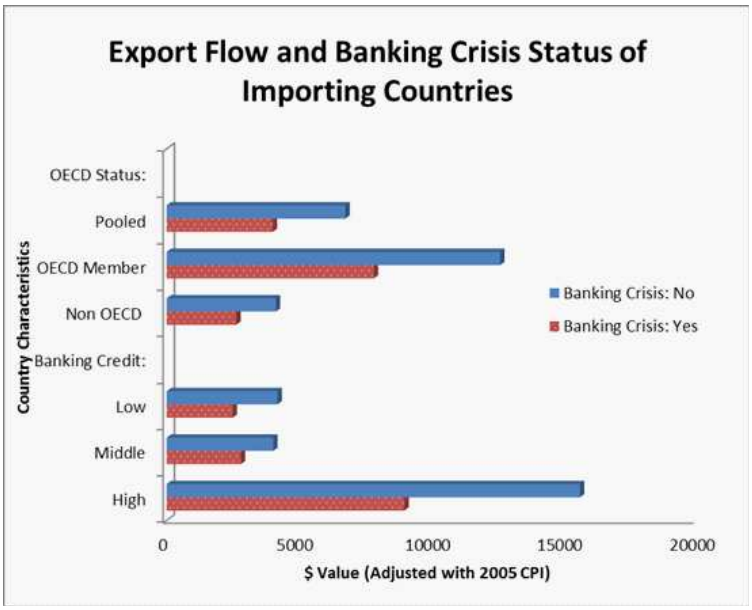
Appendix C.1: Ranking of Cumulative Bilateral Exports From Pakistan (1980-2006)

Appendix D

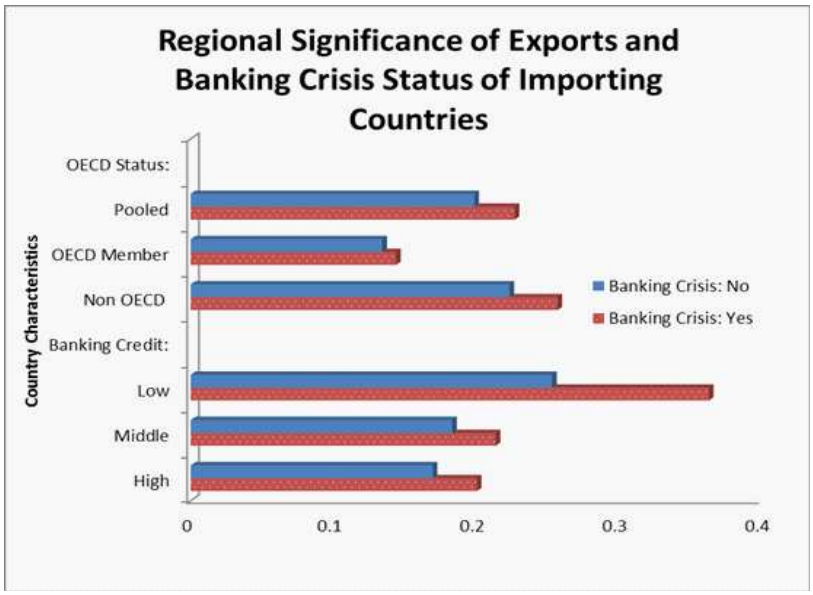


Appendix D.1: Correlation Between Exports From Pakistan and Regional Significance of Exports From Pakistan

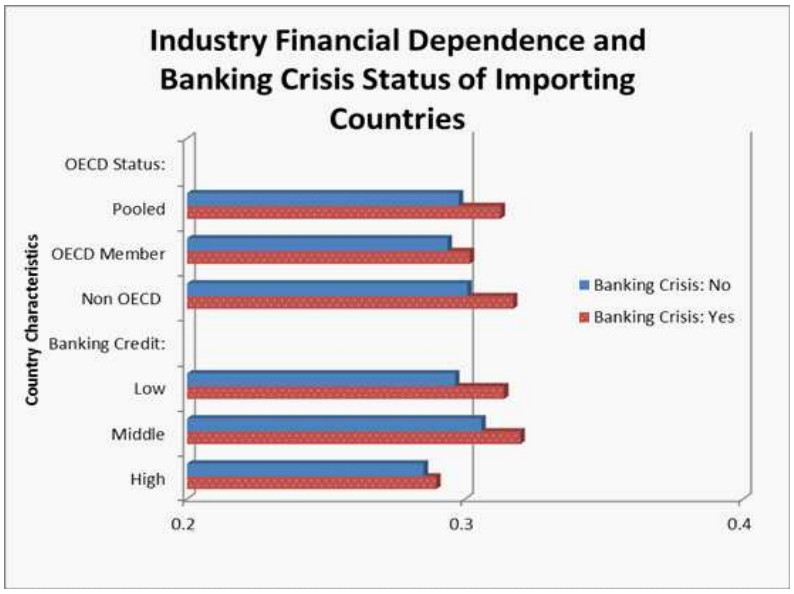
Appendix E



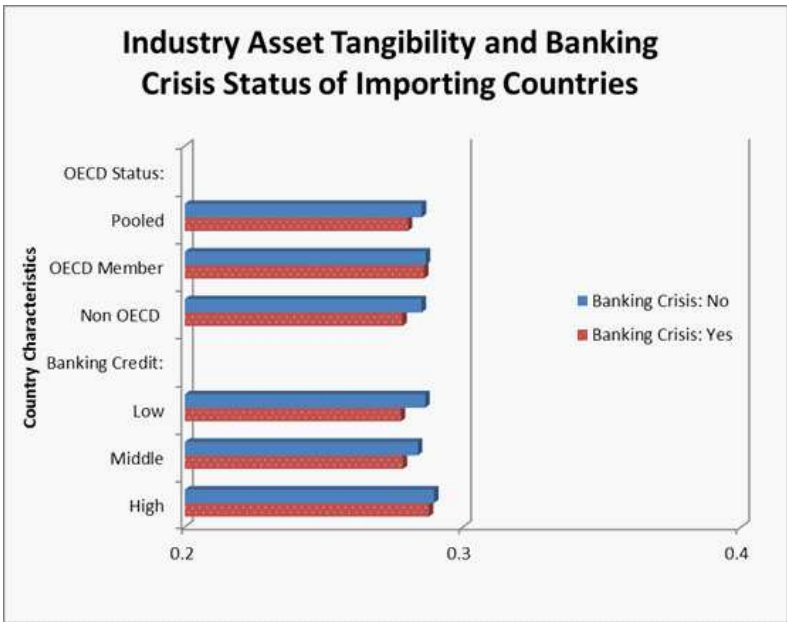
Appendix E.1: Export Flow and Banking Crisis Status of Importing Countries



Appendix E.2: Regional Significance of Exports and Banking Crisis Status of Importing Countries

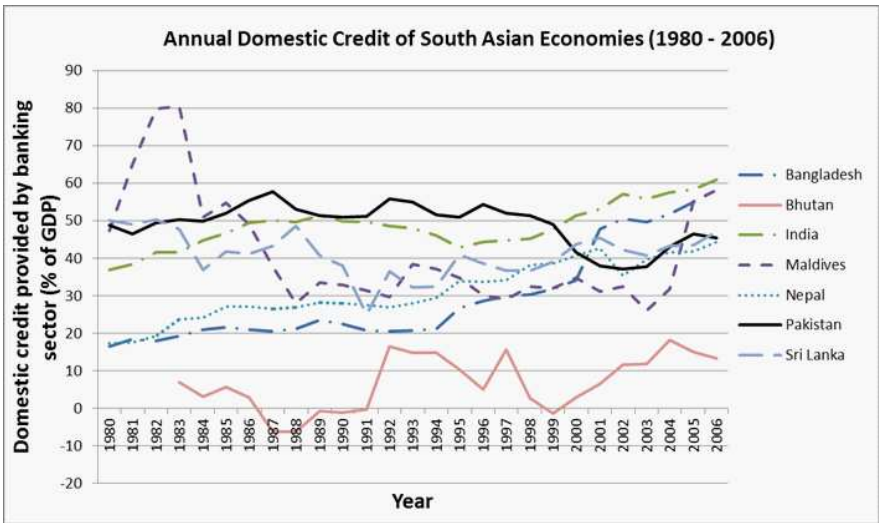


Appendix E.3: Industry Financial Dependence and Banking Crisis Status of Importing Countries

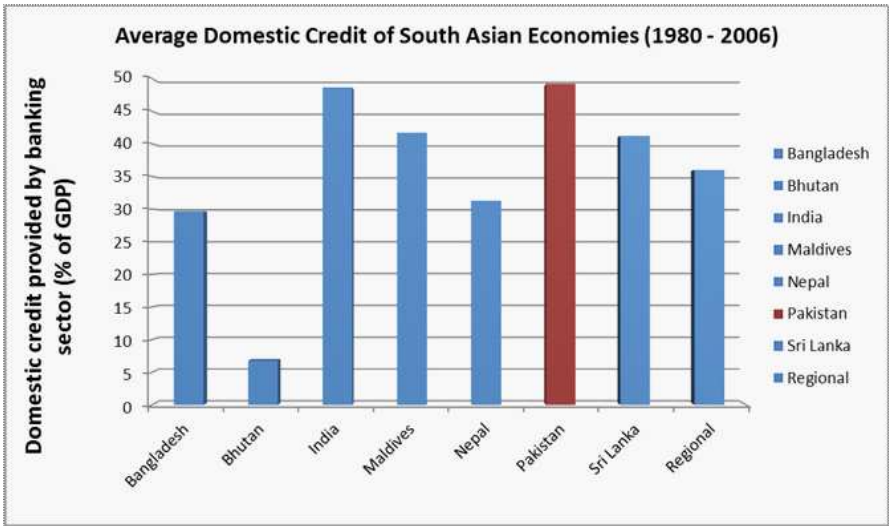


Appendix E.4: Industry Asset Tangibility and Banking Crisis Status of Importing Countries

Appendix F



Appendix F.1: Annual Domestic Credit of South Asian Economies



Appendix F.2: Average Domestic Credit of South Asian Economies