ABSTRACT

This study is based on proposing and testing the role of financial depth and stock market development in promoting growth and reducing macroeconomic volatility in respect of different countries of world . It was found that in the long-run growth may be enhanced by concentrating on stock market development. In the short-run, stock market development and trade openness were found significant for growth. However contribution of stock market development was very low.The results show that for European countries, financial depth and stock market development contributed to long-term growth. However contribution of financial depth outweighs that of stock market development. For ASEAN region, financial depth played a significant role to foster growth in the long-run. Financial depth, stock market development and trade openness played a key role to support growth in the long-run for Asia Pacific and MENA region. However in the short-run only financial depth contributed to growth. It was proposed that financial depth should be enhanced since it has played a persistent role in achieving growth. It is concluded that financial depth and stock market development may contribute to curb volatility in the long-run. However the role of stock market development was considerably higher than that of financial depth. Monetary Union provided very little support in this regard. In the short-run, financial depth, stock market development and degree of financial integration may contribute to curb volatility. In case of European economies, financial depth and stock market development contributed to reduce volatility in the long-run. MENA countries and ASEAN nations witnessed a significant role of trade openness and financial development in reducing macroeconomic volatility.

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CHAPTER 1

INTRODUCTION

1.1. INTRODUCTION TO FINANCIAL OPENNESS

Financial openness is much talked about phenomenon these days. With the increase in cross border trade of financial assets, capital markets of countries are facilitating the cross border trade of securities. Financial market openness means a platform where the law of one price holds and it appears that the financial assets are traded in a single market. Financial market openness is beneficial for the countries and investors as well. However its harmful effects have also been experienced by the countries in the form of macroeconomic volatility and financial contagion effect.

Financial openness may take various shapes. It includes cross listing of stocks of companies on different stock exchanges and cross border linkages between the financial institutions of the countries. In financially integrated markets, investors can trade financial assets without any barriers and flow of capital is facilitated among the countries. Transaction costs are low and price convergence can be observed. Historically financial openness has been proved beneficial as well as harmful for the countries around the world. The major benefits of financial integration are economic growth, consumption smoothing, allocative efficiency of capital and risk sharing for the investors. However its costs are output volatility, exchange rate volatility and monetary policy shocks.

Financial openness may result in capital market integration resulting in free flow of capital across the borders. Capital market integration includes the equity market linkages offering

opportunities for the foreign investors to make portfolio investment. In integrated capital markets, the law of one price holds which means that assets having same risk should be traded at the same price i.e. provide same return to the investors across the world. The consequences of financial market integration appear in the form of equalization of prices of and returns on financial assets as observed by (De Brouwer, 2005).

Capital Market Integration may be short term as well as long term. This is judged by the co-movements of the returns of the markets. Many researchers like Syriopoulos (2004,2006,2007), Semitas et al.(2007), Ratanapakorn and Sharma(2002), Chen et al.(2002), Gelos and Sahay (2000), and Chen et al.(1997) documented that the factors responsible for long run equity market integration are financial innovation, deregulation of market, interest rate movements, economic relations and financial crisis resulting in propagation of shocks. In other words we may say that financial openness, interest rate differentials, trade relations among the nations and financial contagion may contribute to financial market integration.

Financial openness is not without costs. If the economies are strongly linked then the shocks of the economies, suffering from financial turmoil, may be passed on to other countries. This may badly effect the economic growth of such closely integrated countries. Studies show that the countries neighboring each other may have similarity in trade cycles and therefore financial integration does not provide those benefits which are available in case of countries located in different regions. The reason being the effects of adverse trade cycles may be passed on to the other countries.

That is why global integration is preferred to regional integration. In other words regional integration is less beneficial than global integration. Having said these countries must achieve the

benefits of financial openness but risks or hazards of financial integration must be avoided. A country such as Pakistan which is one of the emerging markets and developing economies in the world has great potential for fast development. One of the hallmarks of Pakistan's economy is its stable and rather developed financial sector. Research in the area of financial integration shows that financially developed countries are better able to benefit from financial integration than countries having less developed financial sector. It is obvious that Pakistan like many emerging market economies has liberal investment policies and a deregularized economy but despite this it has not been able to capitalize this for her economic growth. Similarly other less developed countries have not been able to become beneficiary of financial integration. This study focuses on benefits and costs of Capital Market Integration, an important aspect of financial integration, through financial development. We also tried to see the effects of financial development on economic growth, and macroeconomic volatility. Moreover it was ascertained whether a model could be developed which would enhance the benefits (economic growth) and minimize the costs (macroeconomic volatility) associated with financial integration or not?

Capital market integration may come in to effect as a result of an agreement between countries aspiring for integration. However such countries must be aware of financial contagion which may cause the spread of shocks from one market to another market. Countries having developed financial system show resilience against financial contagion. Capital market integration requires lifting of restrictions on cross-border financial flows between countries. Capital account openness paves the way for fruitful market integration. Morevoer taxation issues and regulatory matters between countries also deserve special attention since these have implications for investors across countries. Therefore taking care of these issues may help countries in achieving purposeful integration which may be beneficial for the countries. Some of

the benefits are allocative efficiency of capital and access to the credit markets for the firms in need of finances. Investors may have the fruits of capital market integration in the form of risk sharing through diversification of their portfolios.

One of the implications of the financial openness is regulatory independence. Financial institutions, working in the integrated environment, should be made to adopt some standardized practices such as uniform Accounting Standards. This may improve the transparency of the firms which would result in enhanced confidence of masses on the financial system. Capital market integration could be made effective without entering in to agreements. For example; instance of financial market integration may be cited as sharing of financial information, establishment of foreign banks, participation of foreign investors in mutual funds, giving local firms an access to foreign debt markets etc.

The question of measurement of financial integration is equally important. There is no standard proxy of financial integration in the literature. The proxy for financial openness is used to capture the financial integration i.e. ratio of financial assets and liabilities to GDP. Some countries impose a lot of restrictions on many financial transactions.

Some countries impose a lot of restrictions on many financial transactions which makes it difficult to appreciate financial openness due to differences among countries (Eichengreen, 2001). In literature financial openness is also measured by the correlation of returns on assets between countries. Relaxing controls on capital flows results in financial openness. This openness may be beneficial as well as harmful for countries.

The level of capital market openness may be appreciated in two ways. Interest rate differentials and forward premium/discount may be used to ascertain the degree of capital

mobility and capital account liberalization (Frankel and MacArthur 1988). These measures are no doubt persuasive but suffer from the difficulty of correctly measuring the level and effectiveness of government restrictions. Moreover the data and time periods relating to countries suffer from limited availability. Another proxy is available in the form of on/off indicator which is a qualitative measure. This measure was employed by Grille and Milesi-Ferretti (1995). IMF developed a restriction measure for capital account which was worked out by Quinn (1977) who assigned scores for the level of capital account restrictions.

To ascertain the level of financial openness, restriction on trading of equities may be taken into account. Factors affecting international flow of capital may be numerous apart from some macroeconomic factors. Monetary and fiscal policies may be instrumental along with the size of the economy and international economic conditions. Some studies lay emphasis on international flow of capital to measure financial integration or openness. Financial openness may be viewed as sum of international assets and liabilities as a percentage of Gross Domestic Product. Higher the said ratio, higher would be the level of financial integration and financial openness and vice versa. This indicator is superior to other measures since it not only reflects the capital account restrictions but also takes into account other factors such as domestic capital markets which may influence the quantum of international flow of capital.

The ratio of net foreign assets to GDP accounts for the external position of a country with respect to holding of foreign asset and liabilities as well.

1.2. PROBLEM IDENTIFICATION-THE EMPIRICAL GAP

After developing trade linkages, countries started journey towards economic integration. This encouraged countries to form custom union, economic community and monetary union (EU nations). Economic integration assisted in financial market openness to a great extent. The present economic blocks like European Union and ASEAN made considerable efforts in this direction. It was interesting to appreciate that the countries included in these blocks shared few common geo-political characteristics. However they differ considerably with respect to their level of financial development. It is undoubtedly believed that financial integration should not be a zero sum game and futile exercise. Rather it should serve to maximize the benefits of market integration i.e. growth, risk sharing and allocative efficiency of capital and minimize macroeconomic volatility.

Post integration facts provide evidence that many countries experienced contagion effects and exchange rate volatility when they opened up their markets. Capital flight from especially low income countries may shake their financial system thus leaving countries with volatile exchange rates. Historically the major beneficiaries of market integration were financially developed and high income countries. Unfortunately low income countries had to bear cost of market integration in the form of macroeconomic volatility. Thus it may be inferred that before integration, financial development (equity market development and financial depth) was not a major consideration for economic and financial market integration on the part of economic managers. This may be one of the reasons why did market integration not provide desired results i.e. increasing growth and lowering macroeconomic volatility?

Therefore it becomes important to ascertain whether the goal of higher growth and lower macroeconomic volatility is achievable with financial integration assisted by financial

development or not? Moreover to ascertain whether the variables like stock market development (an aspect of financial development) and financial depth can optimize growth and minimize volatility is also of interest to us from empirical point of view. Therefore the two aspects of financial development, stock market development and financial depth, deserve special attention since these may influence growth and macroeconomic volatility.

As a preliminary investigation, the models of European Union and ASEAN were studied. Both the regions gradually moved towards market integration. However the countries comprising EU and ASEAN were not homogenous with respect to level of financial development. The benefits of market integration were not shared among countries. An important question is why did some countries not benefit from market integration? Some nations were better off while the others were deprived of from any benefit of financial integration. In case of EU and ASEAN benefits of market integration were not shared among the countries. One of explanation for this may be the differences in level of financial development of countries. Our preliminary exploration shows that countries with low level of financial development, i.e. stock market development and financial depth did not enjoy the benefits of market integration. A question arises whether high level of financial development may translate market integration into success. Whether the two aspects of financial development i.e. stock market development and financial depth are significant for growth and macroeconomic volatility or not? This is an important aspect to be investigated.

Let us look at financial openness from global perspective. The economic blocks that exist today consist of countries that share borders with each other or share some common traits like culture, geography and economic system. Perhaps financial development (stock market development and financial depth) was not given due consideration before market integration.

The question arises before integration whether this arrangement would be fruitful for all stakeholders or not? We can hardly find any study which proposes a model of financial openness on the basis of such factors like financial development (capital market development, financial depth) and trade linkages. That is to see whether financial market openness is beneficial when the countries are at different level of financial development or not? Post integration facts speak for fruitful market integration of those countries which are financially developed in terms of stock market development and financial depth. Therefore it is interesting to appreciate the effect of financial development on growth and macroeconomic volatility. This may lead to answer an important question of how sensitive growth and volatility are to financial development. That is to see how do financial depth and stock market development play their role in enhancing growth and lowering macroeconomic volatility?

The experiences of European Union serve as a good case study for us. European Union experienced market integration as well as monetary union. This makes EU a good case study from empirical point of view. It is interesting to appreciate that the Union underwent many difficulties due to the heterogeneous financial characteristics of the member countries. For example countries like Greece and Portugal were not financially developed as compared to Germany, France and Italy. Greece suffered from financial crisis and was about to collapse. Greece was having a less developed financial system as compared to other European countries.

In order to save the Greece from default, other member countries had to offer financial assistance in the form of bailout packages. There was an apprehension that the union may collapse. One question may arise, had the union been formed keeping in view the financial development and institutional characteristics of the member countries would situation have been different?

The problems faced by EU and ASEAN call for rethinking of the existing models of market integration. An important inquiry would be whether market integration accompanied by financial development would lead to robust growth and low volatility. Apparently the present blocks of EU and ASEAN did not focus on the role of financial development. Although it was supported by monetary union (in case of EU) and trade openness, the benefits of market integration were not apparent for many countries. That is to say neither these countries could achieve robust growth nor could they lower macroeconomic volatility.

Let us reduce this discussion to problem statement. European Union and ASEAN are good case studies for us to study financial openness. The countries forming EU share common culture, political thought and geography. They were already having good trade relations with each other. This led to strong economic integration which was further strengthened by monetary union. Thus economic integration and monetary union led to more deeper financial integration than ever before. But what was surprising fact that all countries were not the recipient of the gains of financial integration? Rather some countries had to suffer from macroeconomic volatility. ASEAN countries share borders with each other and they also enjoy trade linkages. In 1997-98 these countries suffered from acute financial turmoil. After this crisis, ASEAN countries experienced more integration of their markets.

Theoretically integration should have been translated into more growth, risk sharing and lower macroeconomic volatility. Unfortunately the gains of financial openness remained elusive for many countries which put a question mark on the purposefulness of financial integration. Existing models of market integration do not have any mechanism to achieve robust growth and avoid or minimize macroeconomic volatility. This calls for redesigning the structure of these blocks focusing on those factors which may assist in achieving growth and lowering volatility.

Thus how to strike a nice balance in achieving growth and lowering volatility is an important question yet to be taken up by the economic managers of EU and ASEAN.

It may be inferred that the existing model of capital market integration suffer from some inherent defects. That is why the expected benefits of integration i.e. economic growth, low volatility, risk sharing, allocative efficiency of capital and consumption smoothing are not achieved by all countries. Moreover some countries had to bear a huge cost in the form of macroeconomic volatility. Both European Union and ASEAN nations have experienced this. The question arises what factor(s) was (were) overlooked which could have played a significant role in fostering growth and lowering volatility? Focusing on the role of this (these) factor(s) may help us achieving the goals of more purposeful financial integration in the form of high growth and low volatility.

Our preliminary exploration of degree of openness of 46 economies of Asia Pacific, ASEAN, and Europe invited our attention towards the role of two aspects of financial development i.e. financial depth and stock market development. Financial depth is associated with credit market development while stock market development is an indicator of capital market development.

Both capital market development and financial depth serve to complement each other. The focus on the role of these factors may be helpful for economic managers to come up with more refined model of financial openness. However statistical significance of financial development (stock market development and financial depth) for economic growth and macroeconomic volatility needs to be tested. Similarly it is yet to be seen what level of financial development is instrumental in minimizing the macroeconomic volatility and maximizing growth? The answers to such questions would give us insight about varying role of the stock

market development and financial depth. To put it simply what level of stock market development and financial depth is required to be achieved which may promote economic growth and lower macroeconomic volatility is yet to be determined. The answer to this question would help make the future process of market integration more purposeful and fruitful for the nations aspiring for financial openness.

1.3. RESEARCH QUESTIONS

Based on the problem statement, following research questions would be answered.

- What is the optimal level of financial development (stock market development and financial depth) to be achieved if financial integration is to become beneficial? That is at what level or degree of financial development countries are able to maximize benefits of economic growth, and minimize macroeconomic volatility.
- Whether financial openness across different regions is beneficial or not?
- Do the benefits of financial market openness i.e. high economic growth and lower macroeconomic volatility compete with each other or can be achieved simultaneously?
- Whether the factors (variables) financial depth, stock market development, and trade openness are jointly significant in influencing the growth and macroeconomic volatility or not?

1.4. OBJECTIVE OF THE STUDY

The study aims at ascertaining the role of financial depth and stock market development for fruitful financial openness. The significance of these factors (variables) would be tested. This would enable to ascertain the role of stock market development and financial depth in promoting

growth and minimizing volatility for different regions such as Europe, Asia Pacific, and ASEAN etc. This would also help us appreciate the region wise and country wise differences in level of financial development across regions and countries.

The study also aims at working out optimal level of stock market development and financial depth that would lead to beneficial financial integration. This optimal level of financial development may serve to foster economic growth and lower macroeconomic volatility. This study would answer an important question that whether a threshold level of financial development exists for developing and developed countries .Threshold level of financial development is the optimal level at which countries may achieve robust growth and lower volatility.

1.5. RATIONALE OF THE STUDY

After having identified the problems associated with existing models of integration, second thought may be given to the existing models of financial openness. Our preliminary exploration leads us to opine that developing countries do not have sound financial system. That is to say they have low financial depth and low level of stock market development. This may result in propagation of shocks from other markets. Moreover adverse trade cycles of neighboring economies may badly affect the member countries of economic blocks. The same phenomenon was witnessed in East Asian Financial Crisis. It was observed that the countries in the economic blocks like EU and ASEAN did not equally benefit from financial openness. Even some of the countries were at disadvantage and had to bear the costs associated with financial openness. Therefore existing blocks of EU and ASEAN could not ensure that benefits of financial openness are shared among the nations.

The problems associated with the financial openness need to be addressed if financial openness is to become beneficial for the countries. The present economic blocks like European Union (EU) is facing the same problems associated with financial openness. All EU countries are not at the same level of financial development. Previous research findings provide us evidence that financial integration is beneficial if countries have attained a reasonable level of financial development. Same is the case with ASEAN countries where countries lack in financial development and institutional strength. It is a matter of interest to see whether benefits of financial openness can be enhanced if emphasis is laid on financial development or not? There arises a need to see the effect of financial development, trade openness and monetary union on growth and macroeconomic volatility. The question is whether it is possible to think of an arrangement which simultaneously could ensure economic growth and low macroeconomic volatility or not?

Let us think of such an arrangement of market openness which would eliminate the disparities among countries with respect to growth and volatility. A system that would not make one country better off at the cost of another country. More often than not each country in a block is not likely to benefit equally from financial integration and the benefits of market openness vary from country to country. The cited benefits of capital market openness i.e. growth, risk sharing, consumption smoothing and allocative efficiency of capital vary from country to country. The existing arrangement of financial market integration has not resulted in a win-win situation for all member countries. The reason being present models of financial openness are more or less dominated by geo-political dynamics. Therefore existing models of integration lack the aspect of financial development. However these models only incorporate trade openness between the nations.

Our preliminary exploration of the topic leads us to believe that existing economic blocks do not take into account the financial characteristics of the countries like level of financial development, financial openness, degree of integration, and monetary union. Therefore it seems plausible to talk about such an arrangement of financial integration which would give due weight age to such factors. That is why this study focused on the financial parameters of the economies like financial depth, stock market development, and degree of integration, monetary union and trade openness. The significance of these factors (variables i.e. financial depth, stock market development and monetary union) would be tested to see whether these contribute to enhance growth and reduce volatility? These factors form the basis of our hypotheses that benefits and cost of financial integration are influenced by financial development.

It would also be interesting to see whether the benefits of financial market openness are competing or otherwise. We would also see whether our findings would help countries to focus on that (those) factor(s) which will act as a stabilizer in striking a nice balance between achieving growth and avoiding macroeconomic volatility or not?

The novelty of this study is that it has taken cognizance of significance of two aspects of financial development i.e. stock market development and financial depth along with trade openness and monetary union. Neither was it observed as to what financial characteristics (financial development i.e. stock market development and financial depth) a country must have for a fruitful integration. This study endeavors to bridge this gap in the literature by proposing and recommending certain financial characteristics (factors) for countries and regions to focus on; so that countries and region could achieve the goal of economic growth and stability.

CHAPTER 2

THE EU AND ASEAN

2.1. THE EU AND ASEAN'S EXPERIENCES

Towards our journey to a controlled and managed financial integration, the lessons learnt from the experiences of ASEAN and European Union would be torch bearer for us. That is why it seems plausible to give some thoughtful consideration to these economic blocks. Both the blocks went for capital market integration after they formed trade linkages thus conforming to the theory that financial integration follows the trade or economic integration. It is worth mentioning that ASEAN region was seriously hit by the currency crisis of 1997-198, even then the region experienced considerable capital market integration post crisis. The currency crisis of 1997-1998 was proved severe for these countries due to financial contagion effect and many countries experienced considerable exchange rate volatility. Despite this, increased integration of ASEAN markets reflects a firm belief on the fruitfulness of market integration.

The Association of Southeast Asian Nations (ASEAN) took a step ahead and established ASEAN Economic Community (AEC). This forum would facilitate the free flow of goods, services, and capital across the region by the year 2020.

The formation of ASEAN Economic Community (AEC) was a step towards enhanced integration encompassing the economic and market integration. It is important to mention that for ASEAN, European Union has been a role model. Therefore the integration experience of Europe was served as food for thought for the economic managers of the ASEAN region. The

relationship of ASEAN and Europe is important since Europe is the major trading partner and a source of Foreign Direct Investment flows to the region.

European experience of economic integration is quite different from ASEAN region. Europe, in the outset, adhered to the policy of protectionism. In case of ASEAN, intra-regional trade was based on market forces of demand and supply. It is important to appreciate that the real economic integration within ASEAN has been different from European integration. Europe has been ahead of ASEAN in terms of intra-regional investments and trade. ASEAN region has member countries having considerably different levels of economic and financial development. One of the reasons of differences in economic growth and macroeconomic volatility may be the divergent levels of financial development in ASEAN countries. That is why the financial development is an important factor to be considered for fruitful market integration.

2.2. A LOOK AT EUROPEAN ECONOMIC COOPERATION

Following World War-II, thinking was emerged in Europe to unite the resources for the common benefits of the region. Behind this thinking, there was also an aim to end the enmity among the European nations and achieve the economic uplift of the region. The move for integration was started from the Western Europe in the early 1950s.

The initial integration was at sectoral level of different industries of European countries. In 1951, an agreement was reached between the pioneer countries, Belgium, France, Luxembourg, Italy, West Germany and the Netherlands, called the Treaty of Paris. The establishment of the European Payments Union was also an important step to facilitate transactions. The journey towards integration continued and European Economic Community

(EEC) was formed in 1957 under the Treaty of Rome. This reflects a persistent growth in the process of integration.

The legislation also played its role to facilitate the enhanced integration. The Treaty of Rome was modified through Single European Act in 1986 which was aimed at creation of an integrated common market in the Western Europe to facilitate the free flow of goods and services including capital flows. At that time, the member countries were not as financially open as they were open economically. With the progress on single market for Europe, the European leaders started thinking of monetary union thus opting for a single currency. As a result, the Maastricht Treaty was reached in 1991 among the member nations which became the basis for European Union and adoption of euro as a single currency. The year 1999 came with historical achievement on economic integration when 12 out of 15 members of the EU opted for euro as a unified currency. Only Denmark, Sweden, and the United Kingdom did not opt for euro. The member countries opting for euro fixed their home currencies at a predetermined rate to the euro. However hard euro was adopted in 2002 by the member countries of EU.

With the monetary union, the European model of integration aroused interest for the researchers. It may be expected that with monetary union, the degree of financial integration is likely to surpass the other regions. The reason being the foreign exchange risk of the investors was eliminated with single currency. European integration was motivated by geographical as well as political factors. However before going for integration, the differences in respect of financial development, financial depth, and size of the economy were not taken into consideration. The integration was also focused on western European countries. The inclusion of Eastern European countries was materialized at much later stage. Western Europe and Eastern Europe considerably differ in economic thought as the west was the proponent of the capitalism

and market economy; while the east favored the socialism and controlled economy. This difference in economic thought was also served as a divide between eastern and western Europe. It is also point blank that the Western Europe was close to the United States, a flag-carrier of capitalism while Eastern Europe found its allegiance with the former Soviet Union (USSR). It took long for the eastern European countries to change their economic thought and join the European Union.

2.3. THE ASEAN EXPERIENCE

Many factors are responsible for regional financial integration in East Asia. One of them was the Asian financial crisis of 1997-1998, to which many East Asian countries fell prey. This crisis called for more resilient regional economic block capable of absorbing adverse shocks.

The motive behind the ASEAN was geo-political like European Union. The ASEAN integration was also augmented by preferential trade agreements. Although financial integration among ASEAN nations was not up to the mark, some progress in this area was made in the form of one stop investment centers and ASEAN Investment Area (A I A).

On the pattern of European Economic Community, ASEAN nations thought of creating an ASEAN economic community (AEC) by 2020. They also placed the European Union experience of economic cooperation before them keeping in view their own region specific characteristics. It is beyond doubt that financial integration is not a simple process that completes overnight. This is a slow time taking process which follows the economic integration as happened in case of European Union. After trade and economic linkages and establishment of common market, EU opted for monetary integration thus complementing the process of integration. ASEAN did not go for monetary integration as the region was not convinced of the

benefits of the monetary integration. One of the reasons for not opting for the single currency was the direction of trade for the ASEAN nations which is considerable outside the ASEAN region. This makes ASEAN different from Europe where the volume of trade within EU is sufficient to take advantage of common currency.

ASEAN has also taken a step towards the formation of ASEAN Bond Market which later on suffered some problems of market depth and liquidity and therefore moved towards Asian Bond Market. The adoption of common currency is also likely to enhance the speed of financial market integration for ASEAN nations as it may serve to eliminate the exchange rate volatility for the region. To attract Foreign Direct Investment, ASEAN has taken many initiatives. The idea of ASEAN Investment area is a step towards this objective. It is important to appreciate that the goal of common integrated market cannot be achieved without lowering the transaction costs. It is important to appreciate that the goal of common integrated market cannot be achieved without lowering the transaction costs.

2.4. LESSONS FROM ASEAN & EU- A FOOD FOR THOUGHT

It is opined that the future arrangement of market integration may be based on insight taken from ASEAN and EU's experience of financial market openness. In both cases the motivation behind the integration was geo-political rather than pure economic. The degree of market integration in case of Europe was quite high and therefore it caused financial contagion effects to badly affect the economies of the member countries. In case of ASEAN markets, strong degree of integration was observed with the western markets like USA. That is to say ASEAN markets were more integrated with global markets rather than regional markets.

It was observed that whenever financial contagion occurred, there was no mechanism or shock absorber which could save the ASEAN and EU markets from spillover effects of financial crisis. Although the financial integration for ASEAN and EU proved fruitful and it facilitated free flow of funds besides adding to the growth and diversification benefits ; yet the member countries of both the regions had to pay huge costs in the form of macroeconomic volatility. This has posed a serious challenge to the existing models of market integration of ASEAN and EU. Had there been a risk sharing mechanism, the potential macroeconomic volatility would have been controlled or minimized if possible.

One thing which is very apparent from both models of European Union and ASEAN is that in both cases, integration was geographically and politically motivated. And surely the economic rationale for integration was rather somewhere behind these motives. Secondly the differences in the financial systems, level of financial development, and institutional quality were not given due consideration and weight age.

ASEAN economies suffered huge losses as a result of macroeconomic volatility during currency crisis of 1997-1998 owing to strong market linkages with other regional economies. EU financial markets experienced shocks due to sub-prime mortgage crisis of 2007-2008. These financial events have seriously challenged the collective wisdom of economic managers of both the regions.

The role of sound institutional frame work and robust regulatory supervision is also worthy of discussion. Less developed countries generally lack in institutional quality and financial depth. ASEAN can be differentiated from Europe on the basis of level of financial development. In case of EU most of the countries had achieved robust level of financial development while in case of ASEAN many developing countries lacked in financial

development and financial depth. Most of the economies of ASEAN region are emerging economies offering higher returns to the investors than the financially developed economies. Despite this ASEAN is far behind in reaping the fruits of financial integration. One of the reasons may be a rather weak institutional framework and inadequate regulatory supervision.

Geographically integrated countries may experience correlation in their business cycles. The co-movement of business cycles of geographically integrated countries like those falling in EU and ASEAN may translate into financial contagion. This may call for opting for global integration of financial markets instead of regional integration due to high correlation of business cycles among the countries located in the same region. Empirical findings in this regard are interesting which report that equity market integration results in business cycles divergence while credit market integration results in business cycle convergence.

Both the ASEAN and EU opted for capital account liberalization thus to facilitate the free flow of funds. EU also made efforts for a single banking market after the 15 years of Treaty of Rome. Realizing the importance of credit market integration, the integration of banking system was materialized. Integration of banking system facilitates the cross-border lending and borrowings and thus adds to the degree of equity market integration as well. In spite of these bold steps, financial market integration could not match real economic integration in the form of trade ties.

Nowadays financial markets are integrated over the internet and there are no physical barriers or borders involved as is the case with the trading of real commodities. Investors can freely trade in commodities and financial assets over the World Wide Web. This makes financial integration more feasible and pragmatic even for the geographically distant countries. The capital

markets of geographically neighboring countries may suffer from financial contagion but it may not be the case for geographically distant nations.

In order to comment on the performance of the European and ASEAN financial integration, we would have to see whether the members by and large are the beneficiaries of the financial market integration or not? Whether the costs of integration outweigh its benefits or not? Similarly an ideal arrangement of financial integration is likely to be beneficial for all the economies, but in real world this does not happen. This paradox needs to be resolved. Due to differences in financial market characteristics of countries, the benefits of integration are not shared across the board. The same was experienced by the European Union and ASEAN economies. The same was experienced by the European Union and ASEAN economies.

In ASEAN the member countries differ from one another with respect to financial development, financial openness, and degree of integration. Although in the beginning, the founder members of EU were financially developed. But the countries that joined EU recently, such as countries from Eastern Europe, are comparatively less developed financially and economically.

The question of financial development gains importance especially with reference to the capital market integration. The ample development of equity markets and banking system would ensure the success of financial market integration. To make market integration successful, both the equity market development and credit market development complement each other. That is why a sound financial system spurs the growth of capital markets. ASEAN and EU although focused on these two aspects but what was alarming was the absence of a mechanism ensuring the less privileged nations to have the benefits of economic union. With the adoption of unified currency, EU took a leap forward in this regard and came up with more comprehensive

arrangement for financial integration. The results of monetary union of EU were reported as mixed. Some researchers observed that European monetary union has really added value for the investors and paved the way for enhancement in growth of trade and investments in the region. However, some described monetary union as neutral in fostering the financial market integration.

It is beyond doubt that common currency is helpful in elimination of exchange rate exposure for the European nations but the risks associated with common monetary policy still pose a threat for the region. Propagation of monetary policy shocks is an outcome of monetary union which seems unmanageable up till now for EU as well as ASEAN. Similarly when a country is hit by financial crisis, its fall out would be seen in other economies.

The same happened when the Greece was hit by financial turmoil. The Greece's financial position became a threat for the Euro area and the union was close to breakup. There was a long debate on the bailout package given to the Greece to help her come out of the crisis. If we analyze this case study, we may infer that Greece was not at the same level of financial development as compared to other European nations in the union. The question is whether Greece still had to experience the same crisis, had it been a financially developed economy.

The resilience of EU financial system to absorb the shocks needs to be tested. In a recent report on European Financial Integration, the European Central Bank reported that the European equity market proved more resilient than the European Bond Market in absorbing shocks.

2.5. THE SINGLE SUPERVISORY MECHASNISM-EU ANSWER TOFINANCIAL CRISIS

After learning a lesson from recent financial crises, the EU went for some institutional reforms to strengthen financial system. Therefore an agreement was reached in December 2012 for the establishment of Single Supervisory Mechanism (SSM). The said SSM would help regulate the banking system and pave the way for banking union for the region. It would help manage the propagation of shocks to various countries as a result of cross border borrowing and lending. The SSM is all set to regulate more than 6000 credit institutions of the euro area. That is why its scope is broad.

One of the salient features of SSM is that it allows the non-euro countries to participate in SSM through close cooperation. The establishment of SSM reflects on the part of EU that it attaches great importance to credit institutions as compared to equity markets.

The said mechanism would ensure the cooperation with other supervisory authorities like European Banking Authority (EBA), the European Systematic Risk Board (ESRB) within the framework of European System of Financial Supervision (ESFS). The SSM would ensue that the credit institutions must comply with the prudential requirements i.e. SSM regulations. SSM is expected to provide short-term as well as long-run benefits for financial stability and financial integration. The question is whether SSM is sufficient to manage the risks associated with equity markets or some separate mechanism would be designed for the said purpose?

2.6. TOWARDS COMPLETE INTEGRATION OF EU CAPITAL MARKET

The EU has yet to achieve full market integration for securities as well as efficiency in transaction costs. Therefore the potential for single currency and single market has not been exploited in full. The EU is keenly interested in facilitating the full scale integration and to serve this purpose a T2S platform was built. T2S stands for Target 2 Securities. This is a single platform for settlement of securities in Europe. It would help the markets to achieve efficiency and safety in the post trade environment. Target2Securities (T2S) would provide technical infrastructure for the investors so that they could operate across the borders. The fragmentation problem of markets would be solved by the introduction of T2S platform. Fragmentation is causing high costs and inefficiencies to the market participants. And T2S would help minimize these costs. The T2S project has become operational in June 2015 and it is likely to add to the investors' facilitation. T2S platform would help investors hassle free trading.

The introduction of T2S would make cross border transactions safe and efficient for the market participants. Through T2S arrangement, the countries outside the EU would also become members and transact over the internet. This system would go for enhanced financial market integration as it would include non-EU members as well. Up till now settlement practices across the markets are different which need to be harmonized. The proposed T2S arrangement would make the settlement system identical for all market participants.

It is evident that these efforts are aimed at modernization of the markets to ensure the transactional and informational efficiency. The integration with in the region and across the regions is worthy of discussion. Intraregional financial integration may suffer from lack of diversification benefit while inter-regional or global integration offers diversification benefits.

That is why global market integration is preferred to regional integration. Countries with in the same region may experience similar business cycles and waves of financial distress may pass on to other economies of the region. Countries experiencing different business cycles and less correlation in trade cycles are rather good candidates for market integration.

European model of financial integration is superior to ASEAN model in its modernity, resilience and efficiency. However, it still lacks the inherent capability of dealing with the contagion effect. The challenges faced by present models of financial integration invite the thoughtful academicians and practitioners to come up with some managed and controlled arrangement of market integration. That is why rethinking of financial market integration is justified and a need of hour.

CHAPTER 3

LITERATURE REVIEW

Let us see how are the earlier research findings on the issue of financial integration thought provoking for us? The various aspects of financial integration like degree of financial integration, financial openness, trade openness etc. have been discussed. This literature review provides a guideline and serves as a basis for the specification of our proposed model. Researchers have given considerable attention to the factors of financial integration, like financial development, monetary union and trade openness. But these parameters have not been jointly given consideration to ascertain their impact on growth and macroeconomic volatility in the context of financial integration. This chapter provides ample previous research findings and discussion in respect of variables (factors) of our proposed model. Financial development (Capital market development or stock market development, Banking sector development or financial depth), degree of financial integration and trade openness were discussed in the light of previous studies.

Before we move on to the research findings about these factors, let us discuss some base line theories relating to economic growth and trade. These theories lend support to our study and are consistent with our hypothesis with the exception of few. Thus our study is in line with the existing theories of growth. Now we look at some baseline theories of growth to have some insight.

3.1. BASELINE THEORIES OF GROWTH

Theories of economic growth may be categorized into three models which differ on views of economists on steady growth potential of an economy. In this regard classical growth theory, neoclassical growth theory and endogenous growth theory are worthy of mention.

3.1.1. Classical Growth Theory

This theory is based on Malthusian economics and says that in the long-term population growth increases whenever per capita income increases above subsistence level due to technological progress or increase in capital. According to this theory rate of growth does not increase permanently. The reason being population increase brings the rate of growth back to subsistence level.

Population growth leads to diminishing marginal returns to labor which reduces productivity. This prevents permanent long term growth in GDP. Classical growth theory is not supported by empirical evidence. Countries have experienced robust growth despite increase in population. Therefore this lacks empirical support.

3.1.2. Neoclassical Growth Theory

The primary focus of neo-classical growth theory is on estimating economy's long term steady state growth rate. The economy is at equilibrium when the output to capital ratio is constant. When the output to capital ratio is constant, the labor to capital ratio and output per capita also grow at equilibrium growth rate.

It is noteworthy that steady state growth rate for the purpose of neo- classical growth theory does not assume a constant level of technology.

Under neoclassical growth theory:

- Capital deepening affects the level of output but not the growth rate in the long run. Capital deepening may temporarily increase the growth rate, but the growth rate will revert back to the subsistence level if there is no technological progress.
- An economy's growth rate will move towards its steady state regardless of the initial capital to labor ratio or level of technology.
- In the steady state, the growth rate in productivity is a function only of growth rate of technology and labor's share of total output.
- In the steady state, marginal product of capital is constant but marginal productivity is diminishing.
- An increase in savings will only temporarily increase economic growth. Countries with higher savings would enjoy higher productivity and higher capital to labor ratio.
- Developing countries will be impacted less by diminishing marginal productivity of capital and hence have higher growth rates as compared to developed countries. There will be eventual convergence of per capita incomes.

If we analyze this theory with respect to our study, this theory recognizes the role of savings in economic growth. Savings are channelized through banking system and only a developed banking system would do so. Our study also focuses on financial depth which captures banking sector development. This theory is consistent with our study. However the notion of convergence of per capita incomes cannot be generalized.

3.1.3. Endogenous Growth Theory

Endogenous growth theory says that technological growth emerges as a result of investment in both physical and human capital. Technological progress enhances the productivity of both labor and capital. Unlike the neo-classical model, there is no steady state growth rate, so that increased investment can permanently increase the rate of growth.

The driving force behind the endogenous growth theory results in the assumption that certain investments increase total factor productivity from social point of view. Investment in research and development result in benefits that are also external to the firm making the R & D investments and serve to benefit the whole society.

The endogenous growth model theorizes that returns to capital are constant. The key implication of constant return to capital is the effect of an increase in savings. Unlike the neoclassical model, the endogenous growth model implies that an increase in savings would permanently increase growth rate.

The difference between neoclassical and endogenous growth theory relates to total factor productivity. Neoclassical theory assumes that capital investment will expand as technology improves meaning that growth comes from increase in total factor productivity not related to investment in capital within the model. Endogenous growth theory on the other hand, assumes that capital investment may actually improve total factor productivity.

Endogenous growth theory is relevant with our study and supports our hypothesis. The theory says that investment would spur growth. Investment is channelized through savings and capital markets; and savings is mobilized through banking system. Thus the theory covers both aspects of financial development, i.e. capital market development and banking sector

development or financial depth. This supports our notion of significance of financial development for growth.

3.2. THE CONVERGENCE HYPOTHESIS

It has been empirically observed that there are large differences between productivity of different countries, with less developed countries experiencing much lower output per capita than their developed counterparts. The economic question is whether productivity and hence standard of living tend to converge over time. Will less developed countries experience productivity growth to match the productivity of developed nations?

The absolute convergence hypothesis states that less developed countries will achieve equal living standards over time. The conditional convergence hypothesis states that convergence in living standards will only occur for countries having similar savings rates, population growth rates, and production functions. Under the conditional convergence hypothesis, growth rate would be higher for less developed countries until they catch up their developed counterparts. Once the standard of living converges with that of developed countries, the growth rate would then stabilize to the same steady state growth rate as that of developed countries.

Under club convergence hypothesis, countries with same institutional characteristics such as savings rates, financial markets, and property rights would grow rapidly to catch up their rich counterparts. Countries can join club by making appropriate institutional changes. Countries with different institutional characteristics may not achieve higher growth level.

Empirical evidence shows that developing economies more often than not reach the standard of living of developed nations. Over the past half century, about two third of economies with a lower standard of living than the United States grew at a faster rate than the United States

of America. Though they have not converged to standard of living of United States, their rapid growth provides support to the convergence hypothesis. The club convergence theory may explain why do some countries that have not implemented appropriate economic or political reforms still lag behind?

Let us discuss the relevance of convergence hypothesis for our study. Absolute convergence hypothesis and conditional convergence hypothesis are not supported by empirical evidence. It is not usual for less developed countries to enjoy higher growth than developed countries. Club convergence hypothesis takes cognizance of institutional characteristics like strength of the financial institutions, their development level etc. This version of convergence hypothesis supports our study and consistent with our research.

Here some model of economic growth would be discussed. Famous growth models are Solow's Model, Ramsey's Model, etc. In most of the models, measure of economic growth is per capita income. It is evident from these models that they lend ample support to our study. Let us have a look at them.

3.3. MODELS OF GROWTH

Solow's Model and Ramsey's Model of growth are exogenous growth models. An important fact must be taken into account that there is a considerable variation in per capita income between rich and poor countries.

The poor countries' per capita income is less than 5% of the per capita income of rich countries. Rates of economic growth also vary considerably among countries.

It is worth mentioning that growth rates of countries keep on changing. Once growth rates were zero for whole of the world. The twentieth century observed sharp increase in growth rates. For individual countries growth rates are time variant. A country's relative position in the

distribution of per capita income is not fixed and it may change. Countries can change their status from poor to rich with the passage of time.

Some of the stylized facts of economic growth are as under:

- Per capita income grows over time and growth rate does not diminish.
- Physical capital per worker grows over time.
- Rate of return to capital is nearly constant.
- The ratio of physical capital to output is nearly constant.
- The shares of labor and physical capital in national income are nearly constant.
- The growth rate of output per worker differs substantially across countries.

Let us take up Solow's Model of growth and see whether it is consistent with our study.

3.3.1. The Solow's Model of Growth

Eminent economist Solow came up with a model of economic growth in his famous paper "A contribution to the theory of economic growth" published in 1956. His model was based on following assumptions.

- There is a single good produced and consumed in a country.
- Countries do not trade with each other and there is no international trade.
- Technology is an exogenous factor.
- Markets are perfectly competitive.

The production function was applied to the study of growth problems by Robert Solow (American economist, Massachusetts Institute of Technology, Nobel prize 1990). Solow began with a production function of the Cobb-Douglas type:

$$Q = A K^{a} L^{b}$$

Where A is multifactor productivity**,** a and b are less than one, indicating diminishing returns to a single factor, and a + b = 1**,** indicating constant returns to scale.Solow noted that any increase in Q could come from one of three sources:

1. An increase in L**.** However, due to diminishing returns to scale, this would imply a reduction in Q / L or output per worker.
2. An increase in K**.** An increase in the stock of capital would increase both output and Q / L
3. An increase in A or in multifactor productivity could also increase Q / L or output per worker. To concentrate attention on what happens to Q / L or output per worker (and hence, unless the employment ratio changes, output per capita), Solow rewrote the Cobb-Douglas production function in what we shall refer to as per capita form:

$$Q / L = A K^{a} L^{b-1} = A K^{a} / L^{1-b}$$

The functional form of the model takes into account production function and capital accumulation. Solow's Model also assumes that technology is free, publicly available as not excludable and non-rival good. Inputs to the Solow's Model are capital per worker, population growth rate, technology growth rate and investment rate. According to Solow's Model the growth process follows balanced growth path if gdp per worker, real wage per worker, consumption per worker and capital per worker grow at a constant rate. Capital output ratio is constant and rate of return on capital is constant.

In Solow's Model output per worker along the balanced growth path would be determined by technology, investment rate and population growth rate. It is interesting that changes in investment rate and population growth rate do affect the long run level of output per worker but do not affect the long run growth rate. Policy changes do not have effect on growth. However permanent policy change can permanently raise or lower the level of per capita output.

Although Solow's Model is the first general production based equilibrium Model, yet it lacks micro foundations. However it is empirically testable.

One of the shortcomings of Solow's model of economic growth is that it ignores the impact of investment on long-term growth. Foreign direct investment and portfolio investment are indicators of financial openness and degree of market integration. It has been empirically tested that Foreign direct investment can impact long-term growth. The model fails to appreciate the effect of investment on growth.

3.3.2. The Solow's Model with Human Capital

Mankiw, Romer and Wiel suggested improvements in Solow's Model in their paper "A contribution to the empirics of economic growth". They evaluated the performance of the Solow's Model and claimed that explanatory power of the model can be enhanced by including human capital. Therefore, they extended the model by incorporating human capital. The model is as follows.

$$\mathbf{Y(t) = K(t)^{\alpha} H(t)^{\beta} [A(t) L(t)]^{1-\alpha-\beta}}$$

Where $\alpha, \beta \in [0, 1]$, $\alpha + \beta \in [0, 1]$, and t denotes time.

This implies that the production function exhibits constant returns to scale in its three factors: physical capital (K), human capital (H), and productivity-augmented labor (AL). Specifically, it is a Cobb-Douglas production function. All markets (both input and output markets) are assumed to be perfectly competitive. All firms are assumed to be identical. The economy can then be described by a representative agent. Physical capital and human capital are assumed to be accumulating factors; i.e., the representative agent saves output to have more capital (either physical or human).

According to Solow's Model the prosperity of countries depend on their higher investment in physical capital, low population rate, higher level of technology and time devoted to acquire skills. No doubt human capital can play a crucial role in strengthening institutions which may lead to high level of development of financial sector. Therefore this aspect of the Solow's improved model is consistent with our study and speaks for the financial development.

3.4. GRAVITY MODEL OF TRADE

Timbergen is a Dutch economist who first applied gravity model to analyze foreign trade flows in 1962. In his model, while dependent variable is the trade flow between country A and B, GDP and geographical distance are independent variables. The final estimated results showed that as opposed to distance, the GDP variable has positive effect on the trade flow between two countries, which means countries with larger economic sizes and closer distance tend to trade with each other more. Krugman and Obstfield (2005) also utilizes gravity model for trade activities. The model is as follows

$$Tij = A\ Yi\ YJ\ Dij$$

Where Tij is the total trade flow from origin country i to destination country j.

$Yi\ YJ$ are the size of economies i and j. Dij is the distance between two countries, i and j.

The English economist, Adam Smith, was the first one to propose the absolute advantage theory in foreign trade activities. In the book "The Wealth of Nation" published in 1776, he pointed out that countries should specialize in producing goods that have absolute advantage, then trade with others and they all gain from international trade. However, this theory cannot explain why do countries which do not have absolute advantage still get benefit from international trade?

David Ricardo, another English economist, answered that question by his comparative advantage theory which states that “A nation, like a person, gains from trade by exporting the goods or services in which it has its greatest comparative advantage in productivity and importing those in which it has the least comparative advantage”. Subsequently, a model given by two Swedish economists Eli Heckscher and Bertil Ohlin had extended the D. Ricardo’s theory and developed an influential theory of trade. Heckscher-Ohlin model is enhanced from the simple model of D.Ricardo by adding capital and land alongside labor and fundamental factors. As one of the leading theories about the determinants of trade pattern of a nation, Heckscher-Ohlin model predicts that a country will export products the production of which uses abundant factors intensively and import products of which the production use scarce factors intensively.

Obviously, the classical trade theory indicates that countries which are less similar with respect to factor endowment tend to trade more. Therefore it is unable to explain the huge proportion of trade between nations with similar factor endowments and intra-industrial trade, which dominate the trade of developed economies. This is the motivation for new trade theories which has been established in the 1980s. New trade theories explain the world trade based on the economies of scale, imperfect competition and product differentiation thereby ease the strict assumptions of classical theory.

Recently, gravity model has been utilized intensively to explain bilateral trade flows between two countries which cannot be solved by other economic theories.

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countries, which means countries with larger economic sizes and closer distance tend to trade with each other more. Krugman and Obstfield (2005) also utilizes gravity model for trade activities.

After first research of Timbergen, there have been many other economists applying gravity model with similar purposes. For example, Martínez-Zarzoso and Nowak-Lehmann used the model to assess Mercosur-European Union trade, and trade potential following the agreements reached recently between both trading blocks. Their estimated results indicate a number of variables, namely, infrastructure, income differences and exchange rates added to the standard gravity equation, are found to be important determinants of bilateral trade flows.

Gravity model of trade recognizes the importance of distances between countries for the purpose of trade. Our study also takes cognizance of trade openness between economies and considers trade channel a good support for financial market integration. Thus gravity model of trade lends support to our research.

It is evident from the above discussion that the existing theories of growth and models of growth extend ample support to our study. We shall now look at the previous research findings on the importance of variables (factors) of our proposed model, i.e. financial development (Stock market development and financial depth), degree of financial integration or openness, monetary union and trade openness. We shall first take up degree of financial integration.

3.5. DEGREE OF FINANCIAL INTEGRATION

Financial integration has been a growing phenomenon in recent years. The evidence to this has been a considerable increase in quantum of international assets and liabilities which has become thrice of GDP since the mid-1980s (Lane and Milesi-Ferretti 2007). It would be

interesting to see what would be the influence of financial integration on correlation of business cycles. This question is, no doubt, significant academically and from policy point of view. This is surely a less researched question and therefore deserves special attention. Less availability of data and lack of empirical evidence has been major cause of this. Such study may be helpful in ascertaining whether capital market integration between such countries having business cycle correlation would be beneficial. Some studies shed light on this phenomenon as in the case of Imbs (2004 and 2006) and Kose, Prasad, and Terrones (2003) establishing that financial integration has a positive effect on co-movement of business cycles.

Kose, Otrock, and Prasad et.al (2008) and Kose, Otrock, and Whitman (2008) affirmed the same. Such studies did not take into account the effect of capital market integration between countries having correlation between business cycles.

Global integration needs to be studied from empirical point of view. Regional integration is more common than global integration. It is empirically known that advanced economies and emerging markets are partially integrated (Johnson and Soenen, 2006).It is yet to be seen that whether financial integration across the globe may be beneficial even in the absence of trade linkages. Global integration should be a well thought out phenomenon. For it should be capable of dealing with adverse shocks from different regions and include some hedging mechanism. This may be worked out after having knowledge of origins and volatility spillovers for decision making related to asset allocation, formulation of global hedging strategies and regulatory frame work.

It is not empirically proved that the removal of restrictions on capital flows will surely lead to increased level of financial integration. It is well documented that many less developed countries are having investor friendly policies and relaxation in capital controls. Despite this

international flow of funds is not diverted to such countries. Rather funds are diverted to advanced economies. Developed and developing economies may be differentiated on the basis of financial depth and capital market development. The impact of financial depth and capital market development on growth and volatility needs to be measured to see whether it has significant implication for fruitful capital market integration or not? This is no doubt an important aspect to be studied.

The study of contagion and international crisis is helpful in appreciating the costs associated with financial integration. Credit market linkages may cause the spread of crises as highlighted by Kaminski and Reinhart (2000). The said phenomenon was empirically observed by Moto et al. (2007). International credit market integration may be beneficial as well as harmful. Recent financial crisis of 2008 may be attributed to cross border credit market integration. The same was empirically tested and affirmed by Citronella and Goldberg (2010). It is yet to be seen whether capital market integration would cause business cycle correlation and international contagion effect or not? Currently there is no empirical evidence to support or negate this. Some researchers such as Baxter and Crucini (1995), Kehoe and Perri (2002), Heathcote and Perri (2002, 2003, and 2004) and Faia (2007) established that with increase in degree of financial integration, business cycle correlation decreases. Therefore financial integration may provide avenues for diversification and risk sharing. However the generalizability of the results is yet to be seen. It is worth mentioning that empirically financial integration and cyclical co movements are positively associated. However in theory it is otherwise. This was appreciated by Imbs (2006). This paradox needs to be resolved.

It was observed that equity market integration between developed countries is high while equity markets of emerging economies are less integrated. Hence degree of stock market

integration is important from modeling point of view. Korajczyk (1996) observed that the degrees of equity market integration is influenced by economic growth, financial market development and explicit capital controls.

Therefore these factors justify for incorporation into a model for capital market integration. Auzairyet. al. (2012) stressed on the need to ascertain the determinants of equity market integration in order to achieve the regional and world financial integration. This may be served as a good argument in favor of factors determining the equity market integration to be included in a model.

The degree of equity market integration has important implications for the investors as it may affect the diversification benefits for the investors. Ibrahim (2005) observed that the degree of equity market integration has major implications on financial stability of a country. Study of forces behind the market integration is beneficial for international investors to understand the risks and returns of diversification. Especially with reference to ASEAN countries, Karim and Karim (2012) identified contagion effect, economic integration and capital market characteristics in order to contribute to the research on financial integration. This provides support to incorporate contagion effect, trade linkages and equity market characteristics in our study to come up with model of capital market integration. Chuah (2005) reported that the level of integration of emerging markets is determined by the stock market development, trade openness and country risk.

It may be said without any fear of denial that assets allocation and efficient portfolio management require the assessments of the degree of market integration for success on the part of investors. A higher degree of financial market integration may not suit investors seeking diversification benefits especially in emerging markets. And no doubt integration itself brings

about the development of financial system. Financial integration gives rise to financial development which brings about growth and other benefits.

Hence financial development is a bridge between financial integration and growth. The growth benefit would depend on the degree of integration and removal of some frictions in the markets.

Macroeconomic volatility is one of the cited costs of financial integration which needs to be minimized if elimination of it is impossible. A developed financial system is better able to manage macroeconomic volatility. Monetary Policy is an instrument used to control the money supply, curb inflation and influence exchange rate as well. Monetary policy is implemented through financial system, and surely a developed financial system would work better to achieve the goal of monetary policy and especially control the macroeconomic volatility. That is why the variable of financial system development gains considerable importance in the model of financial integration.Baele et al., (2004) reported that a high degree of integration may cause propagation of shocks i.e. contagion effect. This requires an investigation into the optimal or desirable level of market integration thus minimizing the contagion effect.

3.6. FINANCIAL DEVELOPMENT, GROWTH AND FINANCIAL OPENNESS

Financially integrated countries are recipient of international capital in the form of portfolio flows. To materialize this, flow of funds is facilitated by removing restriction on capital account. International flow of funds has positive as well as negative effects for the economy. Prasad, Rajan, and Subramanian (2007) observed that in case of developing countries, less reliance on foreign capital for funding investment is helpful for growth. They also observed that

even faster growing developing countries are not able to absorb the foreign capital due to underdeveloped financial markets and appreciation in local currency due to capital inflows.

This finding has important implication for us. This calls for giving due consideration to the financial market development for a beneficial financial market integration. It also emphasizes the importance of exchange rate management to avoid the exchange rate instability. Large inflow and outflow of funds may result in exchange rate instability which may translate into macroeconomic volatility. Therefore financial development which may impact volatility needs to be focused on.

The harmful effects of capital market integration have also been appreciated by the economists whom we may call the costs of financial integration. Such costs may include concentration of international flows towards financially sound and developed countries. Poor countries find it difficult to have an access to financing as and when the need arises. Poor economies also suffer due to misallocation of resources which may be detrimental for them. The harms of this may be seen in the form of macroeconomic instability and volatility in capital flows. In order to capital market integration to be fruitful such costs need to be minimized if complete elimination thereof is not possible. Theoretically and empirically no model has been tested so far which would answer the question as to how to control the costs associated with the capital market integration and increase the benefits of financial integration.

Logically the movement of capital should be directed to those countries having robust returns but empirical evidence is otherwise in some cases. Capital flight was observed from poor to rich and developed countries inspite of lower rate of returns offered by financially developed countries. Fernandez-Arias and Montiel (1996) observed that few financially sound economies of Asia and Latin America experienced a considerable increase in international flows in the early

1990s. While small and less developed countries failed to attract investments despite their investment friendly policies. Low income countries experienced a considerable decline in inflow of funds in 1990s as against the top ten countries who were the major recipient of the capital inflows (World Bank, 2001). To substantiate this, it may be seen that despite the open capital account and investor friendly policies, the countries like Sub-Saharan African countries attract negligible quantum of foreign capital. The bulk of capital inflows is attracted towards resource rich countries such as South Africa, Angola and Nigeria as appreciated by Bhattacharya, Montiel and Sharma (1997) and Basu and Srinivasan (2002). It is opined that one of the reason of failure to attract foreign capital on the part of these countries may be their underdeveloped financial markets and fragile financial system. Unfortunately this aspect was not given due consideration in previous studies. Therefore it makes sense to see the effect of financial development on fruitful capital market integration with high growth and low volatility.

Keeping in view the importance of financial development, we have a sound basis to incorporate this variable in our study. Financial development is a channel through which financial integration becomes purposeful. Many empirical studies speak for the role of financial development in enhancing growth of the countries. However it is interesting that the effect of financial integration on growth is mixed. Therefore what factor contributed to this is a relevant question to be answered from both academic and applied perspective. It is true that the higher degree of financial openness brings economic fruits for the countries but it is difficult to empirically confirm the positive effects of financial integration on growth of economies. Therefore why should it not to study the impact of financial integration on growth when it is accompanied by the financial development.

This argument has a support from literature which recommends the institutional frame work supporting the financial integration becomes fruitful from growth point of view as reported by Prasad et al. (2003).

Availability of financial instruments to investors and existence of sound financial institutions is an outcome of financial development. Developed financial markets facilitate the investors in hedging, pooling of risk and trading with minimum transaction costs. This induces investment in the economy which triggers the growth. The impact of financial development on growth was tested on large data set by controlling the other factors of growth in a study conducted by King and Levine (1993a-c). The positive impact of equity market development and banking sector development on growth was observed by Levine and Zervose (1998).It is interesting that the effects of financial development on growth are non-linear and not uniform. An important finding was reported by De Gregorio and Guidotti (1995) that the growth effects of financial development vary across countries and time. That is growth supported by financial development is time and country variant. They added that such effects may become negative. An important research finding came from Rioja and Valev (2004) who observed that relationship between financial development and growth changes on the basis of different levels of financial development. They identified different regions of financial development which may affect the growth effects of financial market integration.

In the context of financial development and financial integration the study conducted by Masten et al. (2008) is considerably relevant. Using panel data of countries they observed that growth benefits are attained by the countries where the threshold level of financial development passes 90% of GDP then it gradually declines.

When the level of financial development exceeds 160% of GDP, the growth benefits become insignificant. Although it was not a rigorous study to capture the threshold effects of financial development, yet a general inference may be drawn that positive effects of financial integration accrue to the economies when countries experience financial depth in the range of 60% and 150% of GDP.

Masten et al. (2008) added that countries having less financial development suffer from costs of financial market integration. They reported that the growth benefits accrue to the economies when a threshold level of financial development is achieved. The countries below this threshold level or above this level fail to achieve the desired benefits of market integration. The advanced countries (financially developed) do not enjoy fruits of growth from financial integration. They added that financial market integration would be futile for the countries having weak financial institutions and less capacity to absorb shocks at the time of financial crisis. And this shock absorption capacity lies in the development of financial institutions. Therefore the parameter of financial development becomes important from research point of view. It is yet to be ascertained that what is the optimal level of financial development which will maximize the growth and other benefits associated with financial market integration and simultaneously minimize the costs associated with the market integration such as macroeconomic volatility. The answer to this question would be a wholesome contribution to the literature on financial integration. That is why financial development is an important variable (factor) of this study.

Financial development also matters with reference to net foreign asset position of a country. Vermilion and Haan (2013) studied the relationship between country's domestic financial development and its net foreign asset position.

They reported that financial development causes net foreign assets of the country to decrease. It means capital inflows are more than outflows. They added that financial development improves the net equity position of the country and lowers the net debt position as well. These findings are relevant for our model. When financial development is instrumental in effecting the composition of foreign assets and liabilities, it means capital inflows and outflows are effected by financial development. In other words financial openness is influenced by the level of financial development. Moreover financial openness may put countries in a situation where it is difficult to manage exchange rate volatility. Therefore to identify the level of financial development which will help us to manage exchange rate volatility is beneficial both from academic and empirical point of view.

Economic growth is one of the cited benefits of financial openness. It is important to appreciate that mere integration does not result in growth. Rather economic growth is achieved by financial development and integration together. Financial development encompasses both stock market development and financial depth. Masood and Hardakar (2012) observed that both the stock market development and banking sector development (financial depth), in emerging economy, are complementary for the financial development of the economy. An efficient capital market is instrumental in economic development. A developed equity market is able to mobilize the capital, provide risk sharing and diversification benefits and liquidity for the investors. Stock market development is captured by size, activity, and liquidity of the market. It is opined that financial development deserves special consideration to achieve the goal of growth and lowering volatility. This calls for ascertaining the desired level of financial development that would lead to beneficial financial integration accompanying growth.

The above discussion reveals that the role of stock market development and financial depth was recognized in the literature which substantiates our stance that these variables (factors) may be focused on for attaining robust growth and lower volatility.

3.7. FINANCIAL CONTAGION AND MACROECONOMIC VOLATILITY

The two decades long history of financial turmoil has provided us enough evidence that highly integrated financial markets are likely to experience financial crises. And the shocks of this crisis are likely to spread over to the markets where financial assets are traded. In order to overcome the propagation of shocks some policy measures may be helpful so that gains from financial integration are attained while reducing the risk of macroeconomic volatility associated with it. Regulatory supervision may also be helpful in this regard. Young (2013) observed that increased volatility in market returns in ASEAN equity markets may give rise to global financial crises. Thus to avoid financial contagion effect, historical volatility of returns of markets may be given due consideration. Moreover the very characteristics of the volatile markets may give insight to help manage the volatility.

For a managed and beneficial capital market integration, the harmful effects of financial market integration must be given due attention so that these are studied along with the benefits associated with capital market integration. Some researcher emphasized more on costs of financial integration than on its benefits as done by Allen and Gale (2000). Similarly financial contagion was empirically observed by Dedola and Lombardo (2009), Devereux and Yetman (2010), Ueda (2010), and Kollmann, Enders, and Muller (2011).

They further added that correlation between output of countries is positively affected by international financial integration. One of the costs of financial integration is propagation of

shocks from one market to other markets. This phenomenon is called financial contagion effect. Cross border investment in equities may help absorb such shocks as observed by Baxter and Crucini (1995) that international investment in equities is helpful in reducing the transmission of shocks. On the other hand international borrowing and lending may propagate the negative shocks to the countries involved in such transactions. The effect of such transactions may be witnessed in the form of output volatility. This phenomenon is referred to as financial multiplier as observed by Krugman (2008). Financial multiplier explains the effect of cross border transactions on the output volatility. It is interesting to appreciate that up till now no study aimed to control the financial multiplier as the existence of this phenomenon is a major irritant for a fruitful financial integration.

It is important to appreciate that cross border investment do effect the domestic economic growth. Saving is essential for economic growth. Through financial integration, investment along with domestic savings may add to economic growth. Foreign direct investment may have long term effects on economic development. Capital market integration also ensures sound macroeconomic policies aiming at economic stability. This may result in disciplined macroeconomic policies free of mistakes (Obstfield, 1998). Policy discipline helps to avoid the macroeconomic volatility and paves the way for high economic growth.

Let's throw some light on the costs of capital market integration which may be accompanied with some macroeconomic challenges for the economic managers. Such challenges might arise in the form of exchange rate volatility, and adverse current account position. Exchange rate volatility needs to be controlled if capital market integration is to become a success story. Here a question arises whether to opt for a flexible exchange rate or go for a fixed peg. Both have their own merits and demerits. It is worth mentioning that majority of studies on

financial market integration do not appreciate the costs and benefits of integration by controlling the exchange rate volatility. We may study a block of countries having Monetary Union (Single Currency Regime) like European Union. By comparing the model of European market integration with some Asian blocks such as ASEAN, the impact of common currency (Monetary Union) can be captured. To the best of my knowledge the impact of common currency on growth and volatility is yet to be appreciated. A dummy variable capturing the impact of common currency on capital market integration may be used. This is significant because by adopting a single currency regime, countries can avoid the exchange rate volatility. But will it be achieved without costs? It still remains to be seen.

One of the havocs of financial integration is contagion effect which is propagation of shocks from one economy to other economy. The outcome of this contagion effect is volatility of capital flows. Currency crisis may give rise to financial contagion as observed by Dornbusch, Park and Claessens (2000) and Masson (2000). Terms of trade shocks may also cause financial contagion. Weak currencies serve as an irritant for imports and exporting countries may receive terms of trade shocks which ultimately lead to financial contagion. Asian and Latin American countries experienced the same in 1990s. It was observed by Alba et al. (1999) that depreciation in Thai currency in 1997 left other ASEAN nations uncompetitive and they experienced terms of trade volatility.

Financial openness should also be looked upon form welfare point of view. It was Ramey and Ramey (1995) who observed that volatility had a negative impact on economic growth. The welfare goal cannot be achieved without controlling for volatility. Some interesting empirical studies show that increase in consumption volatility is accompanied by more financial integration for low and middle income countries as observed by Prasad et al. (2003). The finding

of this study negates some studies establishing that financial openness facilitates consumption smoothing and international risk sharing. Theoretically it is not possible to anticipate the impact of financial integration on volatility. The importance of International financial integration may be realized that it is considered as an engine of growth along with cross border trade. Capital market integration does brings some benefits. However such benefits are yet to be quantified and measured for countries having different level of financial development. This would enrich the literature with important findings.

Macroeconomic volatility is captured by terms of trade volatility which may influence the exchange rates of countries. Al-Abri (2013) studied the real exchange rate volatility, terms of trade shocks and financial integration in case of 53 primary commodity exporting countries. He reported that greater international financial integration helps minimize the macroeconomic volatility. In this study, Foreign Direct Investment was used as a proxy of financial integration. It was reported by Hausman et al. (2006) that developing countries experience three times more volatility in their exchange rates than do the developed countries. One of the arguments for this increased volatility is the composition of exports of developing countries dominated by primary commodities.

We argue that by controlling the effect of exports, we may observe the impact of financial development on exchange rate volatility so that a threshold level of financial development is identified which may help minimize exchange rate volatility. This argument is also supported by the fact that most of the developing countries have less developed financial systems. May we hypothesize that exchange rate volatility is influenced by the level of financial development?

Al-Abri (2013) stressed on the need for future research on international financial integration proxied by Foreign Direct Investment and real exchange rate volatility so that the relationship between financial integration and exchange rate volatility is better explained.

It has also been discussed that some policy measures relating to fiscal policy and monetary policy may be helpful in controlling the macroeconomic volatility. Such measures may be effective in short term but their long term effectiveness is not assured. This has a great research implication for the academia and practitioners since some variable capturing the impact of policy responses needs to be incorporated in the study of capital market integration. That is to say if such integration is to become fruitful for the countries then what impact these policy responses may have on the cited benefits and costs of the integration. However, the variable for policy responses needs to be operationalized.

3.8. FINANCIAL OPENNESS

It is also argued that financial openness helps in minimizing the budget deficit as observed by (Bartolini and Drazen, 1997). Moreover capital market integration leads to reduce the financial and macroeconomic instability.

This gives rise to a better allocation of resources and a robust economic growth. The role of financial development in economic growth has been discussed in literature. Capital market integration causes financial development by providing depth to domestic financial system and markets. This improves the efficiency of financial intermediaries by minimizing the transaction costs for investors which result in higher profitability for the investors (Baldwin and Forslid, 2000).

There is an argument that financial crisis are attributed to short term capital flows. Foreign portfolio flows are more likely to cause financial crisis than foreign direct investment. However a study conducted by Claessens, Dooley and Warner (1995) could not appreciate the difference in the volatility patterns of long term debt, portfolio equity flows, FDI flows and short term flows. However many researchers such as Chuhan, Perez-Quiros and Popper (1996) and Brewer and Nollen (2000) found the opposite establishing that FDI flows show little volatility as compared to other capital flows. It was observed that coefficient of variation for FDI flows were shorter than that of other short term capital flows.

It is important to measure the effect of capital market integration on recipient country's growth. Some studies used a qualitative measure of restriction on capital movements while the other applied a quantitative measure for financial openness. Klein and Olivei (2001) and Artera, Eichengreen and Wyplosz (2001) focused on capturing the impact of capital account liberalization on growth. In the above said studies, level of capital account openness was measured by an index of capital account restrictions. The said index was calculated using IMF data on exchange rate arrangements and exchange restrictions.

Capital account openness brings about economic growth through financial development. This was appreciated by Klein and Olivei (2001) who studied a pooled data pertaining to countries from 1986 to 1995 and observed that financial depth is associated with capital account openness. The more open the capital account, the more financial depth countries would enjoy. This benefit is apparently enjoyed by industrially developed countries and did not by developing countries. However, this positive effect appears to be significant only for industrial countries, not for developing countries. It would be interesting to ascertain why less developed countries are unable to enjoy the benefits of financial openness? In order to ascertain the impact of both type

of capital inflows, Bosworth and Collins (2000) studied 58 developing countries for a period 1978–95. They came up with a conclusion that portfolio flows have no considerable effects on investment but FDI flows have a positive influence.

The effect of FDI on GDP is established one as observed by Kumar and Pradhan (2001) who came up with finding that GDP rises with the one unit increase in FDI to the extent of 0.18 units. However GDP rises to the extent of 0.12 units in case of indigenous investment of one unit. However, the effect of international portfolio flows on GDP is yet to be determined to the best of our knowledge this may be undertaken to capture the impact of capital market integration on economic growth through portfolio inflows.

It is interesting to appreciate that many econometric studies do not take into consideration the negative aspects of the volatility of international flow of funds with respect to their impact on investment and growth. Such volatility may adversely affect the per capita growth rate of the countries having open capital account. Volatility may be influenced by domestic factors along with the external ones.

Therefore these domestic factors call for special attention on the part of researchers so that some control mechanism for the volatility could be worked out. Some earlier studies provide evidence that many countries suffered from volatility in terms of trade due to exchange rate appreciation caused by capital inflows. Similarly some countries suffered from exchange rate depreciation as well due to capital flight as observed by Bhinda, Griffith-Jones and Martin (1999) in case of Sub-Saharan African countries. Volatility also caused inflationary pressures and increasing external imbalances as was experienced by some Latin American countries.

It would not be out of place to mention that differences in per capita income would be minimized with more financial openness as reported by Abiad et al. (2007) in a study of

European countries. It is agreed that larger current account imbalances are not desirable at all but emerge out of high degree of financial integration as observed by Slevov (2009). Therefore it may be inferred that there exists a degree of financial market integration where countries do not experience volatility in their current accounts. This level or degree of financial market integration is yet to be ascertained. Therefore, we may talk about a model of managed and controlled financial market integration capable of dealing with the problem of current account imbalances.

It would not be out of place to mention that the long term effects of international capital flows need to be appreciated. In the short run, such capital flows bring positive results for the economy. This enhances the importance of allocative efficiency of capital which can make the capital market integration more fruitful than the case had the resources not been optimally allocated. Allocation of capital to more productive sectors of the economy leads to capital formation and an export oriented economy thus improving the balance of payments.

3.9. RELATIONSHIP AMONG TRADE, MONETARY UNION AND FINANCIAL OPENNESS

With market integration and openness, the integrated countries may suffer from global imbalances which may cause financial crisis as reported by Bernanke (2009), Krugman (2009), and Caballero et al. (2008). Vermeulen and Haan (2013) reported that current account imbalances do not persist for long as a result of prolonged financial development. Global imbalance may occur in the form of current account deficit of one country and current account surplus run by another country. This also arouses the importance of studying the trade openness of countries along with financial development. When financial integration is assisted by financial development investors would love to invest in even risky assets and countries would experience

capital inflows. The reason being a financially developed country enjoys a protection mechanism in the form of insurance (hedging) against the risks (Mendoza et al, 2009). In a financially developed country, hedging instruments like derivatives are available to investors which strengthen the confidence of investors on the depth of financial system.

Trade openness is a factor which deserves special attention in the context of financial integration. This is well documented that capital market integration follows the economic integration. Trade openness is measured as sum of exports and imports as a percentage of GDP. Clausing and Dorobantu (2005) reported that investors would divert funds to those markets (economies) which are open to trade and enjoy stable economic environment. Scott Davis (2012) also incorporated bilateral trade integration in a model. This provides a rationale for including Trade Openness as a variable of our study.

Exchange rate instability is also a serious issue associated with massive capital inflows and outflows. The recipient of high inflows may experience appreciation in their currency while capital flight might cause depreciation in currency. Therefore exchange rate management is required in the absence of monetary union. Exchange rate volatility is ominous to the global prosperity and it causes volatility in capital markets. The knowledge regarding co- movement of capital markets and exchange rate risk may help to minimize international risk and transaction exposure. High degree of financial integration is possible with foreign exchange control measures as observed by Ravazzolo and Phylaktis (2000). They also opine that financial integration follows economic integration. Discussing the links between financial and economic integration, Ravazzolo and Phylaktis (2000) observed that during 1980s, not a single precedent is available where financial integration did not accompany economic integration in the form of trade relations. In the next decade i.e. 1990s, in case of only two countries out of 38, financial

integration was not found to be associated with economic integration. This was the case of Thailand and Philippines versus USA. It is interesting to appreciate that Asian financial crisis reduced global economic integration but served to increase regional financial and economic integration. In literature such evidence is available where development of sub-regional blocks did not promote capital market integration in case of Africa as observed by Agyei-Ampomah (2011).

The adoption of common currency may complement the process of financial integration thus facilitating the sale and purchase of financial assets. Single currency paves a way for lower transaction costs for the investors. The introduction of Euro has led to deeper integration and lower transaction costs for the countries opting for euro.

Higher correlation between bond returns and narrower spreads between government bond yields speak for presence of market integration. Researchers like Pagano & Van Thadden (2004), Japelli & Paganno (2008) and Laopodis(2008) reported higher integration for Bond Markets in the case of Euro area and Davis et al. (2005) , Walti(2007) and Kim et al.(2006) reported deeper integration of stock markets in case of Euro area. These findings may be served as a good basis for considering a monetary union (single currency) as an important factor for financial market integration.

Cross border holding of assets has also shown a considerable increase after the introduction of euro. Similarly the adoption of Euro has caused a considerable increase in the cross border bond holdings i.e. liabilities. Bilateral bond holdings were reported as twice that of non-euro countries as reported by Lane (2006). The effect of single currency on equity holdings was also observed by Milessi -Ferreti (2007). It was also documented by Lane and Melesi-Ferreti

(2007) that the speed of increase in cross border assets and liability holdings was faster in Euro area than the rest of the world.

Another researcher Pel (2010) reported that Euro had a significant effect in bilateral asset position. Similar finding came from Berkel (2006) when he studied German gross portfolio flows in a panel covering 47 countries from 1987 to 2002. It was also reported by Spigel (2009) that Portugal and Greece received heavy borrowings from Euro area while cutting down borrowing from the rest of the world. This implies that cross border debt holdings have increased too with the introduction of single currency. Therefore it may be inferred that the scale of financial market integration has significantly increased after the adoption of single currency i.e. Euro.

Thus a variable which influences the market integration deserves special attention as to why should it not be included among other variables in a study?

Widening current account balance is another problem associated with financial integration. Schmitz and Hagen (2011) studied the current account balance and financial integration of the Euro Area under single currency regime. They reported that current account imbalances are indicators of net capital flows among Euro economies. They added that net capital flows are followed by differences in per capita income of countries. Schmitz and Hagen (2011) established that the introduction of Single Currency has changed the net capital flows within the Euro area. However, Euro has not influenced the capital flows between Euro area and rest of the world. In case of EMU (European Monetary Union) countries, GDP per capita was found significant as a determinant of capital flows. For non-EMU countries, capital flows are determined by the different levels of income which suggest that Euro has a positive impact on market integration between the European countries not opting for Euro and the rest of the world.

It was also reported that the common currency has influenced the responsiveness of the capital flows within the euro area.

Financial events also deserve special attention with respect to market integration. Kennettet. al. (2012a) reported that global events cause market linkages. Financial crisis of 2007-2008 provides an ample evidence of propagation of shocks to different markets. As far as Asian markets are considered, they are generally perceived as not influenced by the global factors. That is why these markets are less integrated with the western markets as observed by Aityan et al.,(2010), Harvey (1993), Sing and Loh(2010).

The importance of trade in economic integration is established one. It is also well documented that financial integration follows economic integration. Didier et al. (2012) observed the co movement of stock market returns of USA and 83 economies. He used several measures of trade and financial linkages in the form of foreign investment flows. It was observed that foreign investment flows were determinant of stronger correlations between US and other markets during period of global financial crisis. The behavior of investment flows during normal periods may give us insight as to use this as determinant of market integration or not. An important finding was that trade was not an important driver of integration during the crisis period. It implies that trade may be instrumental in post crisis or pre-crisis period.

3.10. FINANCIAL OPENNESS AND RISK SHARING

Financial market integration may be looked upon from two aspects, credit market integration and equity market integration. The presence of foreign banks and international borrowing has shown a remarkable increase. Removal of capital controls has paved the way for more financial integration than ever before. International debt flows have surpassed the equity

flows. An argument for capital market integration is risk minimization for countries and investors. However, strong evidence, in favor of financial integration, of consumption smoothing and risk sharing is yet to be provided. This avenue is yet to be exploited by the research community. To serve this purpose and to manage the macroeconomic volatility, a sound institutional framework is required along with a smart policy instrument capable of handling fiscal and monetary policy shocks.

In order to capital market integration to flourish, countries have minimized the restrictions of the international flow of funds thus facilitating foreign portfolio investment. Free movement of capital would pave the way for the allocative efficiency and diversification for the portfolio investors. Realizing the benefits of financial openness, many economies of developing regions and East Asian and Eastern European countries liberalized their economies to attract foreign portfolio investments. Moreover regulatory changes were brought to relax the domestic financial markets for the investors and removing restrictions to achieve the goal of a frictionless market. The increase in capital flows to developed nations owe to the capital market integration.

Financial openness is often aimed at providing important potential benefits for economies. From investors' perspective, the benefits of financial openness result in expanding the investors' opportunities in the form of diversification benefits and robust risk adjusted returns. From a country's perspective, the inflow of funds may result in consumption smoothing to avoid the undesirable shocks and enjoy the welfare oriented gains from international diversification as a result of international risk sharing as observed by Obstfield (1994). But financial openness is not without costs and is associated with volatility resulting from sudden capital flight. Such volatility may give rise to many financial crises such as Turkish Lira crisis in 2001, South East Asian currency crisis of 1997 and Argentine currency crises to name a few.

The causes of above said crises have been fiscal and current account imbalances, exchange rate instability and massive foreign borrowing. This has invited focus on the financial market instability and controlling the effects of financial openness on the weak and fragile economies having weak supervision and ineffective regulatory framework.

Countries suffering from weak regulatory environment are likely to lose more than to enjoy the gains of capital market integration. Therefore it needs to be ascertained that under what conditions capital market integration would become beneficial when regulatory environment is fragile.

The fruits and harms of capital market integration can be taken into account from the perspective of individual investors and countries. Investors may benefit from portfolio diversification. Analytically capital market integration is justified due to growth and consumption smoothing benefits which are reaped by the countries having open capital account. The establishment of foreign banks may lead to the development of the financial system and financial development influences the growth and development. Risk sharing and consumption smoothing are major benefits of capital market integration for countries and investors.

International financial integration was also studied from point of view of returns and capital flows. Evan and Hnatkosova (2013) reported that at the initial stage of financial integration, capital flows are large and volatile. At early stage international trading is concentrated in bonds. With the passage of time as the integration increases, trading in equity market instruments increases and volatility of flows decreases. Moreover volatility of returns also shown considerable decline. This decline in volatility is attributed to risk sharing which is achieved as a result of enhanced market integration. International risk sharing is an important cited benefit of financial integration. Backus and Smith (1993), Kollman (1995) and many others

observed that complete risk sharing does not exist even in the existence of full integration. It implies that market integration should be accompanied with some other factor which may maximize the risk sharing for the investors and reduce the volatility of capital flows as well.

Summing up the discussion on literature it is opined that hardly there is a study which comes up with a model of capital market integration which aims at maximizing the benefits of financial integration while minimizing the costs associated with it. Up till now no study has captured the impact of financial depth and financial development to ascertain their impact on capital market integration. Capital market integration may be assisted by trade relations between countries and this enhances the importance of trade openness variable. Hardly any study is available which incorporates the parameters like financial development, trade openness, monetary union and degree of financial market integration in a model that attempts to capture the impact of these variables on growth, risk sharing, consumption smoothing and macroeconomic volatility.

Our study provided an answer to a burning question whether an optimal level of financial development exists in order to capital market integration to be fruitful for the countries. Whether we may optimize the costs and benefits of financial market integration simultaneously or not? And what is threshold level of financial development which ensures the greater benefits of growth and lower level of macroeconomic volatility? This also helped in ascertaining whether benefits of market integration are competing or support each other? This would surely bridged a gap in the literature which exists right now as there is no single optimal model of capital market integration capable of guiding the countries and investors and answering to above said questions as well. It is hoped that this research would open up new avenues for future research in the field of financial market integration.

3.11. GAP IDENTIFICATION IN LITERATURE

One of the cited benefits of financial openness is risk sharing among countries. In literature risk sharing is measured by average ratio of consumption volatility and output volatility. Yan &Jing (2011) concluded that the financial openness is not instrumental in improvement of risk sharing among countries. The study did not take into account the tradeoff between risk sharing and other costs of integration. It would not be out of place to mention that risk sharing benefits are not same for all countries. There is possibility that some countries reap the benefits of risk sharing at the cost of others. The study did not take into consideration the effect of financial development on risk sharing. The model employed is not capable of explaining why is financial integration not suitable for emerging market economies?

Scott Davis (2010) observed that financial openness and international business cycles have correlation. However, the study did not present solution for the undesirable cyclical fluctuations. The cyclical fluctuations may result in macro-economic shocks for countries. The study conducted by Scott Davis (2010) did not come up with suggestions as to how to avoid macro-economic shocks i.e. macroeconomic volatility.

The relationship between financial development and financial openness is a cited one. Mendoza et al (2008) found that financial integration may result in global imbalances when countries differ in financial development. In order to measure the financial development, IMF Index for financial development was used. The results of the study are subject to verification by using other proxy of financial development i.e. the ratio of private sector credit to GDP. Moreover what should be the desired level of financial development is yet to be ascertained.

To put it simply what level of financial development makes the financial integration beneficial for the countries has not been answered in the literature. Similarly whether financial

development can play a role in avoiding the occurrence of macroeconomic imbalances is yet to be seen.

Mendoza et al (2008) found that financial openness for financially underdeveloped countries is not beneficial. Martin et al (2005) presented a model of financial integration. The Model explains how are the behavior of international capital flows and asset prices affected by financial integration. It was observed that in early stages of integration, financial flows are large and volatility is great. The model states that integration of world markets facilitates greater risk sharing. We opine that following questions have not been answered by Martin et al (2005).

The notion that financial openness facilitates risk sharing needs to be further assessed on the following grounds.

1. Whether the risk sharing is equally beneficial for all the countries or not?
2. Whether risk sharing translates into increase in returns for investors or not?
3. Whether other benefits of financial integration are sacrificed at the cost of risk sharing or not?

Eozenou and Patrick (2008) studied the relationship between financial integration and consumption volatility. They established that countries suffer from consumption volatility if the level of financial development is less than a threshold. The threshold for financial development measured by ratio of private credit to GDP was estimated around 55% to 60% for absolute consumption volatility and around 65% to 70% for relative consumption volatility. Consumption smoothing benefits are expected above this level.

This implies that industrially advanced countries are likely to enjoy the benefits of financial integration with respect to consumption smoothing. What about the other less

developed countries. Are they able to benefit from financial integration? This question was not taken in to consideration.

Sheavo et al (2008) studied the pattern of international trade and financial integration. They observed that international trade network is more densely connected than international financial network. They added that bulk of trade in financial assets occur among few countries. Moreover high income countries are better linked with one another. This study did not take into account the potential of integration for developing countries and rather focused on industrially advanced countries.

Egger at al. (2005) observed that capital market integration leads to economic growth. This study did not consider the condition precedent for the fruitful capital market integration. That is to say integration accompanied by financial development may be beneficial for countries.

Naime (2005) examined the impact of regional and international financial integration on macroeconomic volatility for Middle Eastern and North African economies and concluded that financial openness leads to increase in consumption volatility. The study, however, did not come up with ways as to how to manage this volatility. Moreover to mitigate the costs of financial integration, Naime (2005) emphasized the financial sector development. However, the study lacks the guideline as to what level of financial development is ideal for financial integration to be beneficial.

After having gone through the literature on financial openness, it is apparent that in the context of financial openness, variables like financial development (decomposed in to stock market development and banking sector development or financial depth) and monetary union (common currency effect) need to be tested for fruitful integration. To serve this purpose, variables (factors) like stock market development, banking sector development, common

currency impact and trade openness may be incorporated in one model. The effect of these factors on growth and macroeconomic volatility may be captured. This would enrich the literature with fruitful findings and contribute towards meaningful capital market integration.

CHAPTER 4

DATA AND METHODOLOGY

For the purpose of our study panel data of countries from different regions such as Europe, Asia Pacific, and Middle East& North Africa was used. Our data consists of dynamic heterogeneous panels, since countries differ in level of financial development, trade openness and degree of integration. The characteristics of data differ across each cross section. The objective of studying heterogeneous panels is to capture the impact of single currency in case of European Union and other regions and also country specific time varying effects.

The East Asian countries enjoy economic linkages but are not under single currency regime. Studying such a panel would enable us to appreciate the difference between countries in respect of growth and macroeconomic volatility due to effect of monetary union. This would help us ascertain whether capital market integration with single currency is more beneficial than it would have been otherwise. Data was taken from World Development Indicators, World Bank publication, external wealth of nations data set compiled by Lane, Milles&Ferretti and IFS published by IMF. This data contains the yearly observations of our variables of interest. Yearly observations were taken since financial integration is a long-run phenomenon. Moreover for our variables like financial development, monetary union and trade openness, monthly and quarterly observations would not serve the purpose from analytical point of view. Usually in case of macroeconomic variables yearly observations are more suitable and appropriate than quarterly or half-yearly data.

As far as methodology to ascertain financial integration is concerned, net foreign asset position of countries was taken into account. We have relied on Lane, Milessi&Feretti (2007) who have used ratio of net foreign assets to GDP to measure degree of financial integration. This measure incorporates foreign assets and liabilities in the form of portfolio investment in equities. Moreover correlation of returns on financial assets was also computed to ascertain the convergence of returns. The reason being financial integration results in convergence of returns on financial assets traded in different markets.

Countries were divided into three panels: Europe, ASEAN region and Asia Pacific &MENA region. The effect of financial development decomposed into stock market development and financial depth were measured on growth. Similarly the effect of financial development on the cost of financial integration i.e. macroeconomic volatility was also studied.

4.1. VARIABLES AND MEASUREMENT

Independent variables i.e. financial development (FD), Trade Openness and degree of integration were included in our study. The variable financial development has been further decomposed into stock market development and credit market development also termed as financial depth. Stock market development is an indicator for capital market development and measured by ratio of market capitalization to GDP. Credit market development or financial depth was measured by taking ratio of domestic credit to private sector to GDP. Trade openness was worked out by obtaining ratio of sum of exports and imports to GDP. Degree of financial integration was worked out by taking absolute ratio of net foreign assets to GDP.

Dependent variable growth was measured by percentage change in per capita GDP while macroeconomic volatility was proxied by terms of trade volatility. A dummy variable was used to measure the impact of common currency. Dummy variable took 1 when countries have common currency or monetary union and 0 otherwise. Since growth is influenced by human capital, labour participation rate, inflation and investment to output ratio, these variables were also taken.

The independent variables, financial development, trade openness, degree of financial integration and monetary union are likely to influence economic growth and macroeconomic volatility. The major cost of financial integration is macroeconomic volatility (MEV) which has been proxied by Terms of Trade Volatility which is also a dependent variable. One way to see the effect of financial integration may be to study the countries having period of financial autarky and financial integration. To put it simply we will see if capital market integration causes economic growth, and to what extent this growth is influenced by the level of financial development. Our objective is to minimize the costs associated with financial openness (financial integration) in the form of macroeconomic volatility and maximize the benefit i.e. growth.

World economic forum has also developed ranking of countries with respect to financial development. The level of financial development may be ascertained according to score or ranking assigned to each country. However, stock market development and financial depth jointly better explain the phenomenon of financial development. The reason being these factors take into consideration credit market development as well as capital market development. That is why financial development was measured by stock market development and financial depth.

In order to capture the impact of common currency a dummy variable was used. This dummy variable denoted by DMU (dummy for monetary union) may take two possible values

i.e. 0 or 1. A country may be a member of monetary union or not. Dummy variable assumes 1 when a country is a member of monetary union and 0 otherwise.

Macroeconomic volatility was proxied by terms of trade volatility. Terms of trade volatility is measured by taking standard deviation of terms of trade index. This measure is widely used in literature. Moreover volatility in trade itself captures a huge impact of macroeconomic volatility. That is why it was widely used in literature as a proxy for macroeconomic volatility. Economic growth was measured by percentage change in per capita GDP over a period of time.

Countries were selected on the basis of maximum available data for the period of study i.e. 1970 to 2013. Given the heterogeneous nature of data and time varying behavior, Pooled Mean Group (PMG) estimation technique was applied. This technique would help us ascertain the impact of our factors (financial development, trade openness and monetary union) on growth and volatility in the long-run as well as in the short run.

We have placed countries into three groups, Europe, ASEAN and Asia Pacific & MENA region and therefore three panels of data were formed. Countries in these regions have no similarity with respect to financial depth and stock market development. Historical data from 1970 to 2013was used for model estimation. Countries in these regions have no similarity with respect to financial depth and stock market development. Historical data from 1970 to 2013was used for model estimation.

4.2. THE RATIONALE FOR SELECTION OF METHODOLOGY

Methodology was selected keeping in view the attributes and nature of the data as well as the objective of research. Although we have macro level data of different countries belonging to different regions. These countries differ in level of their financial development, trade relations, and degree of market integration. We have divided data into three panels, i.e. Europe, ASEAN and Asia Pacific & MENA region. Our independent variables like financial development, degree of integration and trade openness are not fixed rather time varying. Therefore our panels are dynamic heterogeneous panels. Moreover our panels are not balanced since data availability in respect of equity market development for some countries became possible later than 1970s.

Considering the objective of our study, we have arranged data in to three panels consisting of three regions i.e. Europe, ASEAN and Asia Pacific &MENA. We are interested in studying the short-run as well as long-run parameters over different time period. In short-run, slope and intercept parameters of each country are of interest to us. While in the long run, parameters of whole panel were estimated.

Given the nature of data and objective of our study, Ordinary Least Square (OLS) method does not seem appropriate. OLS method is not capable of providing efficient, consistent and unbiased estimates. If we transform data and apply Generalized Least Square method, still we may not be able to capture the unbiased short-run and long-run estimates of parameters.

Observation of variation across the cross-sections i.e. countries in our study is very important from empirical point of view. More often than not when countries integrate, their level of financial development, growth rates, and financial openness would not be same across the board.

The differences in these factors in the long run as well as in the short run is significant since it would enable us to appreciate the impact of our independent variables like financial development and trade openness on each country's growth and volatility in the long run as well as in the short run.

After giving due consideration to the objective of study we had to choose from three alternatives, fixed effect estimators, random effect estimators and mean group estimators. However we preferred Pooled Mean Group Estimator to the other methods. In choosing Pooled Mean Group Estimation, we have relied on Pesaron et al. (1999).

4.3. FIXED EFFECT AND RANDOM EFFECT ESTIMATORS

Fixed Effects and random effects estimators are traditional estimators of panel data. Both estimators allow the intercept terms to differ across group. However the variance of the error term and all other coefficients remain same. This restriction of these methods does not suit us as we want to allow the coefficients across various cross-sections to vary in the short run. We want to capture both the short run and long run impact of financial development and other factors on growth and volatility. The reason being some short run effects of a parameter may have contributed to the long run effects.

Our data contains multiple series and multiple cross-sections. And we need to capture the impact of our independent variables i.e. financial development, trade openness, degree of integration on the economic growth, and macroeconomic volatility in a scenario where various countries are integrated with one another. Therefore, we have multiple groups for which separate equation may be estimated for each group. We are interested in the mean of the estimates which may be called Mean Group Estimator. According to Pesaran and Smith (1995),

Mean Group Estimator is capable of providing consistent estimates of the average of variables. It is worth mentioning that this estimator takes cognizance of the fact that certain variables may remain same across the groups.

A variety of dynamic panel data estimators is available in the literature. We have chosen Pooled Mean Group (PMG) estimator for our purpose. Such alternative estimators of dynamic panel data may be divided into three categories. These estimators differ in their assumption about the relative magnitude of cross-sections and time series. The first category of these estimators deals with small cross sections and large time series and is used to compute the long run effects. In case of only one cross section and individual time series an autoregressive distributed lag model (ARDL) is estimated. Estimation of co integrating relationship has been made which is a shift from earlier technique. Pesaran and Shin (1998) have discussed the relationship between two approaches. When cross sections are more than one, method of Seemingly Unrelated Regression Equations (SURE) is used as recommended by Zellner (1962). SURE procedure helps in the estimation of error covariance. The limitation of this method lies in the fact that number of cross sections is very small relative to time series observations. Therefore the method of SURE is not appropriate when cross sections and time series are of the same order. After considering traditional panel data estimators, now we turn to a rather new estimator i.e. Pool Mean Group Estimator (PMG).

4.4. THE POOL MEAN GROUP ESTIMATOR

Let's discuss Pooled Mean Group estimator which performs both pooling and averaging of data. The quality of this estimator is its ability to allow the error terms, short-run coefficients and intercepts to vary independently across the groups. However it assumes common long run

coefficients for all cross-sections. This is supported by reasoning since in the long run equilibrium relationship between variables remains similar due to influence of common factors in many cases. By not imposing the restriction of equality of short-run slope coefficients and intercept helps to capture the dynamic effects of the model.

The equation of PMG estimator is as under

$$\mathbf{yit = \sum \lambda ij\ yit\text{-}j + \sum \beta\ ij\ Xi,t\text{-}j + \mu i + Eit}$$

Where X_{it} is vector of explanatory variables (regressors) for group i and λij is coefficient of lag dependent variables.

The Pooled Mean Group Estimator (PMG) computes the common long run coefficient without making assumption of similar dynamics for each country. PMG estimator is also capable of investigating long-run homogeneity while not imposing the condition of parameter homogeneity in the short-run.

Endogeniety is a major issue in panel data faced by the researchers. This phenomenon causes the correlation of regressors and error terms quite high which may make the estimates biased ones. A major advantage of Pooled Mean Group Estimator is its ability to deal with potential endogeniety which gives this method an edge over the other methods of panel data estimation.

We relied on Vereulen and Haan (2014) who applied this method while investigating relationship between a country's domestic financial development and its net foreign asset position. Stationarity of the data is also an issue which is faced by this study. Thus following Vereulen and Haan (2014) panel unit root tests were run. All series were not found stationary at level and therefore PMG estimator appeared more appropriate to deal with non-stationarity of data. It can handle the issue of unit root in data.

In literature the problem of small time series and large cross sections was amply discussed. When time series is too short to obtain consistent estimates, Pesaran and Smith (1995) reported that under certain assumptions, the cross section regression based on time, averages of the parameters would provide the consistent estimates of long-run coefficients provided that the parameters of the groups are distributed independently of the independent variables and these variables are exogenous. In case of large time series, Pesaran and Smith (1995) reported that for pooled data the conventional methods of estimation such as fixed effects, Generalized Method of Movements (GMM) and Instrumental Variables (IV) suffer from the problem of inconsistent and potentially misleading estimates of the mean values of the parameters in dynamic panel data models. This happens when slope coefficients are not identical. The same was affirmed by Arellano (1989), Arellano and Bover (1995), Anderson and Hsiao (1981, 1982), Keane and Runkle (1992) and Ahn and Schmidt (1995). Surely this would hold true for dynamic random coefficient models even if it is assumed that random coefficients and independent variables are independently distributed. Therefore an estimator with weaker homogeneity assumption would be more appropriate for our study.

Another evidence from literature that supports our selection of methodology is from Hsiao and Tahmiscioglu (1997), and Hsiao, Pesaran and Tahmiscioglu (1998). They relied on the work of Lindley and Smith (1972), Swamy (1970) and Hsiao, Pesaran and Tahmiscioglu (1998). The preference of PMG estimator over random effect model is due to the fact that if inference is to be drawn from micro estimates of samples about the macro relationships, random effect model would do well. Therefore random effect model does not suit to the purpose of our analysis. We have macro level economic and financial data of countries and the inference would be drawn

about the macro level relationship as well. Therefore random effect model may not be an appropriate choice for our research.

Hsiao et al. (1995) proposed a procedure of selection of fixed effect and random effect model with the assistance of Monte Carlo Methods. However in case of dynamic heterogeneous panels, complications arise. Especially when the panels are not homogeneous and balanced, the fixed and random effect models may provide inconsistent and misleading estimates. Therefore in order to resolve multiple issues we need an estimator which is appropriate for all the dynamic heterogeneous panels and capable of dealing with data related issues. Therefore Pool Mean Group Estimator is expected to do well and provide consistent and unbiased estimates for our study.

Our selection of Pooled Mean Group Estimation is also justifiable on the ground that the assumption of homogeneous long-run coefficients provides us a good alternative between estimating separate regressions which allows variances of error terms and all coefficients to differ across the groups; and traditional fixed effects estimators, which hold the assumption of same error variances and slope coefficients.

PMG estimation would enable us to capture the short run variations in parameters and the effects of these variations on the dependent variable as against the fixed effect and random effect estimators which do not allow this. This provides the practical advantage over the other techniques that PMG would determine the short-run dynamics for each country thus taking into consideration the number of time series observations available in each case.

Given the dimensions and attributes of our data which consists of heterogeneous and un-balanced panels we considered Pooled Mean Group estimator which was a superior method to the random effect and fixed effect estimators. We pool the data to have common long-run

parameters but do not want to lose the diversity of our data thus allowing the heterogeneity of countries in each group in the short-run. Moreover, it is also of interest to us to distinguish between short-run and long-run effects. However our main focus is on the long run relationship between regressors (financial depth, stock market development, trade openness, degree of integration) and dependent variables i.e. growth and macroeconomic volatility. The reason being our variables of interest like growth, and macroeconomic volatility would be more meaningful in the long-run. It is worth mentioning that macroeconomic volatility proxied by terms of trade volatility may be affected by some short-run fluctuations in exchange rates and balance of trade which may contribute to the long-term effects. Therefore these short-run effects are also of interest to us.

Pooled Mean Group estimation methodology estimates a common long-run co integrating vector which holds for all countries. Simultaneously PMG allows for short-run coefficients for each country to vary which is a really distinguishing feature of this method.

In our case the financial characteristics of some countries considerably differ from one another and thus cause the effects of financial development, trade openness, common currency, degree of integration on growth and volatility to differ considerably. Thus for empirical and academic point of view, it is worth knowing the short-term coefficients of independent variables associated with each country. In order to check the assumption of homogeneity of long-run coefficients, a test of homogeneity of long run coefficient may be applied.

Variance of error term is important since increase in variance would decrease the reliability of our model. Therefore error term in case of each country may differ. PMG estimator allows the variance of error term to differ across different countries which suits the objective of our study and makes it relevant for the study. It is important to appreciate that our model

estimated by Pooled Mean Group estimator is an Autoregressive Distributed Lag models. It was argued by Pearson and Shin (1999) that a panel ARDL model is useful in a situation when we have variables with different order of integration. If we compare PMG with panel VAR, the latter is too restrictive to allow the short-run coefficients to vary across countries. The ordinary least square method or panel fixed effects albeit provide more statistical power, however these methods do not differentiate between short-run and long-run effects. In case of financial integration which is a slow process, it is important to distinguish between short-run and long-run effects. To the extent of theory, GMM based estimators are capable of addressing the issue of endogeniety. However, they may lead to inconsistent and biased estimates of parameters as reported by Pesaran et al. (1999). In addition to this, GMM based estimators are sensitive to the choice of the instrument. By going through different methods of estimating the pooled data, Pooled Mean Group Estimator was found the most appropriate for our purpose.

The reason being it combines the advantage of pooling the data and simultaneously allowing for heterogeneity of the parameters in the short-run. Moreover PMG estimator also allows for common long-run parameters. The results of Houseman test also suggested PMG estimator more appropriate than mean group estimator.

4.5. THE PROPOSED MODELS OF GROWTH AND MACROECONOMIC VOLATILITY

An equation is a relationship between variables i.e. dependent and independent. Let us establish a relationship between the variables discussed in the literature review. The proposed equations are based on cited relationship between variables of our interest. The purpose of the equation is to capture the impact of financial development, trade openness, and other economic variables on growth and macroeconomic volatility. Financial development has been decomposed

into stock market development (STKMKTDEV) and financial depth (FINDEPTH) measured by ratio of domestic credit to private sector to GDP.

4.5.1. Model Specification

Our specification of equations is based on cited behavior of our variables (financial depth, stock market development, trade openness, and other economic variables) with respect to growth and macroeconomic volatility in the context of financial openness. Our dependent variables are growth (G) and macroeconomic volatility (MEV). Independent variables are financial depth (FINDEPTH), stock market development (STCKMKTDEV), trade openness (TRADEOPEN), and other macroeconomic variables.

$$EG_{it} = a + b_{11}TRADEOPEN_{it} + b_{12}HCAP_{it} + b_{13}(I_{it} / Y_{it}) + b_{14}POPG_{it} + b_{15}INF_{it} + b_2 STKMKTDEV_{it} + b_3 FINDEPTH_{it} + \mu_{it} \quad (1)$$

Let us look at equation (1) which shows relationship of growth with parameters like trade openness, stock market development, financial depth, investment-output ratio, human capital, labor growth rate and inflation. It has been observed that countries establish economic ties in the form of bilateral trade before monetary union. Therefore trade openness was included in equation. Stock market development and financial depth represents financial development which may impact growth.

Economic growth may depend on its lagged values as well as on the lagged values of dependent variables. Therefore our equation takes the following ARDL form.

$$EG_{it} = a_{it} + b_{11}TRADEOPEN_{it} + b_{12}HCAP_{it} + b_{13}(I_{it} / Y_{it}) + b_{14}POPG_{it} + b_{15}INF_{it} + b_2 STKMKTDEV_{it} + b_3 FINDEPTH_{it} + G_{it-1} + + b_{11}TRADEOPEN_{it-1} + b_{12}HCAP_{it-1} + b_{13}(I_{it-1} / Y_{it-1}) + b_{14}POPG_{i\,t-1} + b_{15}INF_{i\,t-1} + b_2 STKMKTDEV_{i\,t-1} + b_3 FINDEPTH_{i\,t-1} + \mu_{it} \quad (2)$$

Where (t-1) represents the lagged values of the growth, and other dependent variables, financial development, trade openness, and financial depth and stock market development. Lags were included on the basis of Akaike Information Criteria (AIC).

Equation (1) and (2) enjoy support from J. Scott Davis (2014), Imbs (2004) where trade integration and financial integration were incorporated in a model. Lane, Milessi&Feretti (2007) used degree of integration in context of financial openness.

The inclusion of these variables enjoys ample support and justification from literature. The relevance of degree of financial openness was established by Baxter and Crucifix (1995), Kehoe and Perry (2002), Heathcoat and Perri (2002, 2003, and 2004) and Faia (2007). They observed that the degree of financial market integration had influence on the business cycle correlation. Korajczyk (1996) also empirically observed that economic growth and financial market development had an impact on equity market integration. Another support from literature came from Chuah (2005) who observed that stock market development, trade openness and country risk may determine the level of market integration. The high degree of market openness may be beneficial as well as detrimental for the countries and Investors (individual investors and institutional investors). It was reported by Baele et. al. (2004) that higher degree of integration may result in contagion effect i.e. propagation of shocks from one economy to other economy.

Financial development (FD) as an explanatory variable in growth equation also attracts robust support from literature on financial integration. Masten et.al. (2008) considered financial development (FD) as an important factor for countries to reap the benefits of growth. In proposed equation financial development has been decomposed in to two components: stock market development and credit market development, i.e. financial depth. We draw support from Masood and Hardakar (2012) who established that both the stock market development and credit market

development in emerging market are complementary and therefore support each other for the cause of financial development.

It is established that economic growth is also influenced by other factors in addition to the above said independent variables. Therefore variables human capital (HCAP), investment output ration (I/Y), labour growth rate (POPG) and inflation (INF) were included in growth equation. In recent studies such as Ghura(1997), Beddies (1999) and Bolbol et al. (2005), it was suggested to use investment output ratio in the place of using capital-output ratio. The effect of other factors (variables) is captured in error term μ. The above equation may have an intercept a which shows that the economic growth assume a value a when the slopes of independent variables and error term are zero.

Macroeconomic volatility (MEV) has been measured by terms of trade volatility. It has been observed that terms of trade shocks may also cause financial contagion effect which is a cost of financial openness. Studies conducted by Al-Abri (2013) and Hausman et al. (2006) speak for importance of analyzing volatility in the context of financial openness. That is why macroeconomic volatility being a major cost of financial openness was studied as dependent variable with financial development (FD), and other explanatory variables. The role of capital market integration was observed by Egger et. al. (2005) who came up with finding that capital market integration led to economic growth.

Finance theory suggests that the heterogeneous level of financial development of countries may cause macroeconomic volatility. Therefore it is the level of financial development which may affect the macroeconomic volatility of countries. Along with financial development other variables like trade openness (TRADEOPEN), degree of financial integration (DFI),

monetary union (DMU) as well as lagged values of volatility, DFI, STKMKTDEV, and FINDEPTH would be helpful in explaining variation in macroeconomic volatility.

Equation (6) is an ARDL model containing lagged values of regressors and dependent variable, MEV.

$$MEV_{it} = a + b_{11} TRADEOPEN_{it} + b_{12} STKMKTDEV_{it} + b_{13} FINDEPTH_{it} + b_2 MEV_{it-1} + b_3 STKMKTDEV_{it-1} + b_4 DMU_{it-1} + b_5 FINDEPTH_{it-1} + \mu_{it} \quad (3)$$

The study, conducted by Naim (2005), provides ample support in establishing relationship between macroeconomic volatility and financial integration as given in Equation (3).The above equation may contain an intercept term *a*. It means when all the slope parameters of other explanatory variables and error term μ are zero, macroeconomic volatility would be equal to the value of the intercept *a*. It is possible that the above said explanatory variables may not fully explain the 100% variation in MEV; therefore the error term μ would capture the impact of omitted variables and latent (unobserved) variables. Equation (3) draws its support from Naim (2005) and Davis (2013).

The above mentioned model shows an autoregressive behavior and also includes lagged values of dependent variable macroeconomic volatility (MEV). The purpose of our estimation of these models is to see whether our parameters i.e. slope coefficients and intercepts are significant in effecting growth and macroeconomic volatility. To serve the purpose of our study, it will be observed that whether macroeconomic volatility and economic growth are influenced by the financial development and other variables in the same manner. There may be a possibility that financial development may not influence the economic growth in the like manner.

It is important to appreciate that above said equations may not fully explain the variation in dependent variables, economic growth (EG) and macroeconomic volatility (MEV). There may

be some latent variables which are not observable. However their effect may be captured by the error term μ.

The purpose of the model is to capture the impact of financial development (STKMKTDEV &FINDEPTH) and other variables like degree of financial integration monetary union (DMU), trade openness (TRADEOPEN) on economic growth (EG) and macroeconomic volatility (MEV). The models are based on the assumption that a week or strong form of capital market integration exists between the countries included in study.

In all equations a variable of trade openness (TRADEOPEN) has been included as exogenous variable. The inclusion of this variable borrows support from literature where Imbs (2004 & 2006), Kose, Prasad and Terrones (2003), Kose, Otrock and Prasad et.al. (2008) and Kose, Otrock and Whiteman (2008) observed that financial integration has a positive impact on co-movement of business cycles. Trade openness as a control variable is justified since financial integration follows trade integration. The decomposition of financial development into stock market development and credit market development (financial depth) is justified by having insight from study conducted by Scott, Davis (2014). Thus our model specification has ample support from literature and the models are ready for estimation of long run and short run parameters using Pooled Mean Group (PMG) estimator. Moreover the selection of model is also supported by Akaike Information Criteria (AIC).

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co-movement of business cycles. Trade openness as a control variable is justified since financial integration follows trade integration.

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CHAPTER 5

RESUTLS AND DISCUSSION

This chapter is based on panel data analysis conducted in respect of 46 countries. Data for 46 countries ranging from 1970 to 2011 was collected for analysis. In order to check the suitability of data for analysis, stationarity needs to be checked. The data consists of 46 series of countries for each variable i.e. stock market development, financial depth, degree of financial integration, trade openness, macroeconomic volatility and monetary union. Our Data consists of dynamic heterogeneous panels. In order to check the stationarity of data, three different tests of stationarity were applied. These tests include Hadery Statistics, Fisher ADF test and Fisher Phillip Parron Test.

5.1. STATIONARITY OF DATA

We have pooled the data of all 46 countries. The following tests were run to check the existence of unit root or non-stationarity of the panel data.

1. Hadery Statistics
2. Fisher ADF Test
3. Fisher Phillip Parron Test

Hadery test works on the assumption of stationarity of series. That is why it has a Null hypothesis that there is no unit root. ADF and Fisher PP test work on the assumption of existence of unit root. That is these tests check the Null hypothesis of existence of unit root.

The Table given below provides the results for test of unit root in respect of all series i.e. Growth, macroeconomic volatility (MEV), Trade openness, Degree of financial integration (DFI), STCKMKTDEV and DCPGDP.

Table 5.1

Unit Root Tests

Series	ADF	Phillip Parron Test	Haidery Test
EG	Stationary	Stationary	Stationary
MEV	Unit root exists	Unit root exists	Unit root exist
*D(MEV)	Stationary	Stationary	Stationary
HCAP	Unit root exists	Unit root exists	Unit root exists
*D(HCAP	Stationar	Stationar	Stationar
)INF	y	y	y
I/Y	Stationar	Stationar	Stationar
POPG	y	y	y
	Stationar	Stationar	Stationar
	y	y	y
	Stationary	Stationary	Stationary
TRADEOPEN	Stationary	Stationary	Stationary
FINDEPTH	Unit root exists	Unit root exists	Unit root exists
*D(FINDEPTH)	Stationary	Stationary	Stationary
STCKMKTDEV	Stationary	Stationary	Stationary

*Indicates first difference of the series. DFI, MEV and DCPGDP became stationary at first difference.

The results of ADF test speak for stationarity of the series of Growth at level for 46 countries. The results indicate that Null hypothesis is rejected at 5% level and the series is

stationary. That is why there is no unit root or non-stationarity in data. Therefore the series is suitable for analysis.

ADF Test result reflects that the growth series is stationary and therefore suitable for analysis. The stationarity of degree of financial integration (DFI) was checked. Haidery test shows the presence of unit root at level. The series was differenced and ADF and Phillip Parron test were applied. The results show that series is stationary at first difference.

Haidery test shows that the series DFI is not stationary at level and there exists a unit root. Therefore in order to make the series stationary, first difference of the series needs to be taken. In panel data sometimes Haidery test may produce different results than ADF and Phillip ParronTest.The stationarity results of different cross-sections were produced.

Fisher ADF TEST was applied on differenced series of DFI. The results show that the series DFI became stationary at first difference. The question is whether this will hold true for all the countries in the panel or not? Intermediate ADF Test results show that out of 46 countries 5 countries' data is not stationary however the combined behavior of the series is stationary.

The original series (DFI) was not stationary and had a unit root. It means that the original series contained a trend. After differencing the series DFI was detrended. The differenced series was found stationary and were suitable for analysis. Country wise analysis of stationarity shows that out of 46 countries, only 5 countries' data shows non-stationarity or existence of unit root. Fisher PP Test was also applied to see the consistency of results. Series DFI was not found stationary at level. PP Test applied on the first difference of DFI series also confirms the stationarity of the series. This test identifies only 3 countries whose individual DFI series was non stationary and unit root was present. However the series of panel of countries was stationary and suitable for statistical analysis.

The results of unit root test in respect of TRADEOPENNESS speak for rejection of null hypothesis of unit root. Phillip-Parron tests reported that series trade openness was found stationary at level. ADF and Haidery tests also confirmed the non-existence of unit root.

When cross-sections were examined for stationarity, a considerable number of cross-sections exhibited non-stationarity at level. The variable trade openness depends on imports and exports of countries. Our sample includes many primary commodities exporting economies which usually experience volatility in their trade balance. However this reason may not be good for the advanced and developed economies.

The results of Phillip-Parron test speak for the stationarity of the STCKMKTDEV which is an indicator of stock market development. The cross-sectional examination of the data shows that many countries are experiencing trends in the data for stock market development. The variable STCKMKTDEV was found stationary at level as indicated by ADF, Phillip Parron and Haidery Tests.

The series FINDEPTH which is an indicator financial depth (credit market development) was not found stationary at level. Therefore the series was differenced. The series FINDEPTH was found stationary at first difference as evidenced by Fisher ADF and Fisher PP tests. The variable FINDEPTH is a complementary to the STCKMKTDEV. The variable FINDEPTH contained a trend but when it was detrended, it became suitable for analysis.

Haidery test for stationarity accepts the null hypothesis of no unit root and stationarity of data. The series MEV (Macroeconomic Volatility) was non-stationary at level. However, it was found stationary at first difference.

The series STCKMKTDEV which captures the impact of capital market development was found stationary as evidenced by Fisher ADF and Phillip Parron tests.ADF test speaks for

rejection of null hypothesis of unit root and therefore series stock market development, STCKMKTDEV is stationary at level and ADF and Haidery test also confirm the non-existence of unit root.

5.2. DESCRIPTIVE STATISTICS

Descriptive Statistics gives an overall view of the data and speak on the behavior of data. These figures describe the general behavior of data of the countries included in our sample. Degree of financial integration was the basis of our selection of countries. Minimum degree of integration was 9.04 while maximum DFI was 0.19 and average DFI was 0.012.Minimum value for trade openness was 13.75% of GDP and maximum value was 444% of GDP with mean value of 80% of GDP. Mean value of growth was 2.28% and the range was -14% and 30%. Average domestic credit to private sector, financial depth was 78% while minimum and maximum values of financial depth were 8.76% and 232% respectively. For stock market development, minimum value was 0.86% of GDP and maximum value was 606% of GDP. However mean value was observed approximately 72% of GDP.Mean value of macroeconomic volatility was observed as 0.0025 with minimum and maximum values of -0.04 and 0.112 respectively. Table 5.2 gives us a clear picture of the behavior of data and Mean values of our variables.

For stock market development, minimum value was 0.86% of GDP and maximum value was 606% of GDP. However mean value was observed approximately 72% of GDP.

Mean value of macroeconomic volatility was observed as 0.0025 with minimum and maximum values of -0.04 and 0.112 respectively. Table 5.2 gives us a clear picture of the behavior of data and Mean values of our variables.

Table 5.2

Descriptive Statistics

	GROWTH	TRADEOPEN	FINDEPTH	STKMKTDV	MEV
Mean	2.28	80.22	78.19	71.59	0.002
Median	2.52	62.04	75.76	49.76	0.00
Maximum	30.34	444.10	232.09	606.00	0.11
Minimum	-14.39	13.75	8.76	0.86	-0.04
Std. Dev.	3.26	67.47	51.711	73.39	0.01
Skewness	0.14	3.04	0.71	2.70	5.94
Kurtosis	12.17	13.30	2.79	13.85	55.38
Jarque-Bera	2516.52	4281.52	62.77	4395.20	86209.21
Probability	0.00	0.00	0.00	0.00	0.00
Sum	1637.17	57517.91	56062.51	51333.94	1.82
Sum Sq. Dev.	7629.58	3259949	1914775	385712	0.065
Observations	717	717	717	717	717

Australia is our first country of Asia Pacific & MENA region. The Table 5.2.1 in Appendix A shows the periodic trends of financial development and growth. Australia is an important economy of Asia-Pacific. Summary statistics for Australia show that Australia observed Mean growth of 2% with maximum and minimum growth of 5.1% and -3.5% respectively for the period 1960 to 2012. This growth level is close to the average growth rate of

our sample. Trade openness of the country was around 33% of GDP as against the mean trade openness level of sample 80% showing far less level of trade openness. Stock market development of the country was observed around 89% and domestic financial development was close to 56% of GDP as against the sample mean of 72% and 78 % respectively. Degree of market integration of Australia is far below the mean degree of integration for the sample. The table shows that the degree of market integration has not improved over a period of time from 1970 to 2011.

Austria, an advanced economy, is enjoying high level of per capita income in the world. Summary statistics shows that the economy observed mean growth rate of 2.55% with range of 5.9% and -4.14% as against the average growth rate of 2.28%. The economy observed low level of integration with the rest of the countries in the sample and considerable volatility. Comparing the figures with the Mean values of sample we come to know that financial depth of Austria was satisfactory with 77% of GDP which is close to the sample. However Mean value of stock market development was quite low as compared to the sample Mean i.e. around 72%. Due to lesser degree of market integration, macroeconomic volatility proxied by terms of trade volatility was far below the sample. Table 5.2.2 in Appendix A shows that Austria has low level of financial development and degree of integration as well as macroeconomic volatility.

Bahrain is an important Middle Eastern country and financial hub of the Middle East. The economy observed volatile growth over the period having minimum growth level of -10% to 10% and average growth level of 0.16%.The level of trade openness was quite high. Average trade openness for the sample was around 80% of the GDP.Its degree of integration was close to the Mean degree of integration of the sample. The indicator of financial depth (FINDEPTH) shows that the economy experienced 46% of GDP in terms of financial development as against

the 78% of GDP for the sample. However the economy showed better stock market development as against the sample.

Let us look at the descriptive statistics for Bangladesh. Summary statistics show that the economy has a modest growth level along with lower level of trade openness, financial development and degree of integration. Degree of integration and level of volatility was also found low. In case of Cyprus, Trade openness showed an increase. Stock market development showed a declining trend while domestic financial development observed an increasing trend. Summary statistics for Cyprus show that mean growth rate was above the average growth rate of the sample. Trade openness was a little below the mean value of the sample. Financial depth was quite high as compared to the mean value of sample while stock market development was quite low. Cyprus experienced moderate growth. Trade openness and financial development levels are satisfactory. The economy experienced low macroeconomic volatility.

Let us visit the statistics for EU member Denmark. The table for summary statistics in Appendix shows very volatile growth and trade openness over the period. Financial depth and stock market development showed a considerable increase over a period.

Denmark an EU economy has achieved modest growth level, and moderate trade openness and financial development. Degree of market integration and macroeconomic volatility was quite low. Summary statistics shows that the country experienced volatility in growth. Average value of trade openness was quite low. Average domestic financial development was close to the sample meanwhile Mean value of stock market development was considerably lower than that of sample. Both degree of integration and macroeconomic volatility was found low as compared to sample values.

Let us look at the descriptive statistics for the Arab Republic of Egypt. The table 5.2.7 shows volatile growth, improved level of trade openness, and modest financial development. The table shows that the economy experienced around 3% economic growth which is above the Mean value of sample. Mean values of domestic financial development and stock market development are quite low as compared to Mean values of the sample. Stock market development observed high volatility relative to the mean volatility of the sample. The table shows that Egypt has close to 3% growth on the average. However level of financial development is not so high.

Table 5.2.8 in Appendix presents summary statistics for Finland. The table shows that a slightly increasing trend was observed for trade openness, domestic financial development and stock market development. Finland has interesting statistics of growth and trade openness. The country has very low level of macroeconomic volatility. Its degree of integration is not high despite being member of Euro zone. Market capitalization on the average is satisfactory. However financial depth is less than that of Mean value of sample. Stock market development was around 82% of GDP.

France, the second largest economy of EU and one of the financially developed economies of world has interesting statistics in respect of financial development, growth, trade openness and degree of financial integration. The table 5.2.9 in Appendix shows mixed trend for growth over a period of time. Trade openness, domestic financial development and stock market development showed an increasing trend over a period of time. France experienced an average growth of 2.2% over 41 years. While its trade openness remained 53.53% of GDP for the same period. Both indicators of financial development i.e. financial depth, domestic credit to private sector and market capitalization to GDP remained 82% and 61.44% of GDP respectively. The

economy experienced very low macroeconomic volatility; and degree of financial market integration was also observed quite low.

Germany is the largest economy of Europe and Euro zone. Germany has one of the most advanced financial systems. The Table5.2.10 shows mixed trend of growth over a period of time i.e. 1970 to 2011.Financial depth showed considerable increase while stock market development showed modest increase. For the period ranging from 1970 to 2011, Germany experienced less than 2% growth and trade openness was observed less than 50% of the GDP. During this period financial depth measured by domestic credit to private sector was observed 91.5% of GDP while market capitalization to GDP remained less than 40% of GDP. Degree of market integration and macroeconomic volatility were absolutely low. Mean value of trade openness was far below that of the sample. Stock market development was far below the Mean value of the sample; however financial depth was above the Mean value of the sample.

Let us visit the descriptive statistics for Hungary. Mixed trend for growth was witnessed. Figures of Trade openness and financial development over a period of time are not impressive.

Hungary observed above 3% growth level despite low levels of trade openness and financial development. Average values of trade openness and financial development are quite low. This shows contribution of other factors in growth of Hungry.

Greece is a member country of European Union. The Table 5.2.12 shows that Greece observed volatility in growth over four decades. However its trade openness increased considerably. Its domestic financial depth increased remarkably over a period while stock market development remained pathetic low. Greece has attained 2.5% growth over a period from 1960 to 2013. Its trade openness is quite satisfactory. Both indicators of financial development are less than 50% as a percentage of GDP. Moreover its degree of integration and macroeconomic

volatility is also low. Average growth of Greece is above that of sample while financial development is quite low. However degree of integration is close to the mean value of the sample.

Ireland and European economy and a member of Euro zone are advanced economies. Table 5.2.18 in Appendix shows summary statistics for Ireland. Ireland has attained less than 1% growth level over a period of 41years. The country's Trade openness level is above 100% of GDP while level of financial development is modest. Degree of market integration and macroeconomic volatility are low.

Italy, an advanced economy, has interesting descriptive statistics. The economy experienced volatile growth, increasing level of financial development and low stock market development over the four decades. Degree of market integration was low. Summary statistics for Italy speak for greater than 2% growth and modest level of financial development. Macroeconomic volatility and degree of integration were found low.

The average growth of Italy is closer to that of sample. Financial depth and stock market development were lower than that of sample. The table 5.2.24 shows that Luxemburg, a small European economy, has promising descriptive statistics. The country enjoyed robust growth over last four decades. Trade openness, stock market development and domestic financial development showed an overall upward trend. Luxemburg observed close to 4% growth and very low level of macroeconomic volatility. Its indicator of financial development and degree of integration were high. It's integration with Euro zone may be a factor contributing to it's growth and financial development.

Comparing the average growth, trade openness and financial development, it is evident from table that the country surpassed the mean growth, trade openness and financial

development of the sample. Netherlands an EU member observed mixed growth over a period, a slightly declining level of trade openness, and considerably high level of domestic financial development. Stock market development also showed an upward trend. Netherland experienced 1.24% growth over 41 year period. Statistics for trade openness, and financial development were above 70% of GDP. However, volatility and degree of integration were low. Table 5.2.27 in Appendix shows the summary statistics for Netherlands. Netherland experienced 1.24% growth over 53 year period. Statistics for trade openness, and financial development were above 70% of GDP. However, volatility and degree of integration were low. It is interesting to observe that the country attained low average growth rate as compared to the Mean growth of the sample. However, average figures for trade openness, domestic financial development and stock market development are robust as compared to the mean values of the sample.

Norway, a scandanevion country, observed very volatile growth patterns over the forty years period. Trade openness, financial depth and stock market development witnessed an overall upward trend for the period. Norway experienced around 6% growth over the last 41 years. Indicators of financial development did not show healthy figure. Growth is considerably higher than that of panel. Volatility and degree of integration was also observed low. Its robust growth and low volatility may be attributed to other factors. Table 5.2.30 in Appendix A presents summary statistics for Norway.

Let us look at summary statistics for Portugal, an EU member country. Growth remained mixed for the forty years period. Trade openness, domestic financial development and stock market development showed upward trend. It's financial depth was promising while stock market development was considerably low despite showing upward trend. Portugal observed less

than 2% growth for the last 53 years period. Level of trade openness and stock market development were low.

Spain, a European Union country, has shown different trends for growth, macroeconomic volatility, financial development, and degree of financial integration. Spain had a positive and robust growth trend. Trade openness and financial depth were promising while stock market development remained modest for the four decades. Spain experienced an average growth of 3.38%. Degree of integration was low and negative volatility was observed with satisfactory level of financial development moderate growth.

Sweden, an EU member country, experienced high level of financial development and modest level of trade openness. Degree of market integration was low but volatility was high.

Sweden experienced very low growth rate and trade openness. Financial development level was good. Volatility and degree of integration were observed low. Summary Statistics of Switzerland state that the country attained promising economic development level. Switzerland attained robust growth and financial development over 50 year's period. Trade openness was modest and degree of integration was low. The economy experienced rather high volatility. Switzerland observed a health growth rate of 4.5% with robust level of financial development. However, degree of integration was low and volatility was also low. Mean growth of Switzerland is higher than that of panel Mean growth. Financial development is comparatively high.

UK is the leading economy of Europe. Summary statistics shows that UK enjoys a stable growth over the period. Trade openness and domestic financial depth are not high while stock market development was quite high. Macroeconomic volatility remained high in some years. United Kingdom attained over 2% growth for the last 53 years on the average. Trade openness

remained less than 50% of the GDP. However stock market development touched a robust figure of around 125%. The economy experienced low volatility and little degree of market integration.

Philippines, a South East Asian country, observed positive growth trend which became negative later on. The country attained very high level of trade openness and stock market development with modest domestic financial development. Summary statistics speaks for it. The figures of growth and trade openness surpassed the Mean growth and trade openness of the panel. Philippines observed 3% growth over the four decades. Its level of Trade openness is very high. Both measures of financial development show modest figures of 27% and 51% as a percentage of GDP. Moreover macroeconomic volatility and degree of integration were found low.

The Table 5.2.36 in Appendix shows that Singapore, a south East Asian country and financially developed economy, experienced robust growth in the beginning period while growth took negative trend at the end. However, trade openness, domestic financial development and stock market development moved in upward direction. It was interesting that the country experienced high volatility despite low degree of integration. Let us look at the summary statistics for Singapore. Average values of growth, domestic financial development and stock market development are higher than that of sample. However, trade openness is slightly lower than that of panel. The table shows that Singapore observed 2.78% growth for the last 53 year period. The country attained robust level of stock market development of 154% as a percentage of GDP and experienced quite low volatility.

Thailand, an East Asian emerging economy, experienced over all positive growth trend over four decades. For Thailand Trade openness, stock market development and domestic financial development showed an increasing trend. Thailand observed 2.58% growth and robust

level of trade openness. The country attained comparatively low level of average financial development and volatility. Turkey is an emerging economy having borders with Asia and Europe. Turkey depicted a low level of financial development. Turkey observed 2.43% of growth over a period of 53 years. The country attained low level of financial development and experienced low macroeconomic volatility as well. Moreover average trade openness and financial development were lower than those of Mean values of the panel.

Hongkong is financially developed economy and an important financial center. It is treated as having one of the most developed financial sectors in the world. The table 5.2.13 shows mixed trend for growth. The statistics for Trade openness were not found worth mentioning. However, figures for financial development were impressive. Honking observed remarkable financial development over the period. It observed satisfactory level of growth over 41 years period i.e. above 4%. However, its level of trade openness was quite low. Both indicators of financial development i.e. stock market development and financial depth were quite high. Despite low degree of market integration the economy achieved a satisfactory growth level and low macroeconomic volatility. This may be attributed to financial depth.

Indonesia, an ASEAN country and a big economy of the region, observed increasing trend of growth over four decades. Level of trade openness increased, however, financial depth and stock market development did not show considerable increase. Indonesia observed greater than 3.5% growth over the last 53 year period. Its level of trade openness was high. However indicators of financial development show low level of capital market development and financial depth.

Malaysia is an emerging and financially developed economy. Let us look at the Table 5.2.25 in Appendix. The country observed mixed growth level and remarkable financial

development. Trade openness also showed a slightly increasing trend. The country has been a heaven for foreign investment due to investment friendly policies. One of the reasons may be its domestic financial development and developed capital market. The country achieved growth and financial development better than the rest of the countries included in the sample. Malaysia observed close to 2.5% growth over the 53 years period.

Its level of financial development was high. However, degree of market integration was low and volatility was also low. One of the interesting things to observe is despite high level of financial development, the country could not attain considerable average growth rate.

Japan is an advanced economy and Asian economic power. The country attained mixed growth having considerable volatility over four decades. During the period, domestic financial development (financial depth) increased and stock market development also showed upward trend. Japan observed greater than 3% growth for the last 53 years. Its level of trade openness was 95% on the average. Degree of integration and volatility was quite low with robust level of financial development. Japan observed greater than Mean growth, trade openness and financial development of the region (stock market development and financial depth). Average volatility experienced by the country was close to that of the region. Table 5.2.22 in Appendix presents summary statistics for Korea, a leading industrial economy of Asia. It observed negative average growth and robust average trade openness as compared to the region's average trade openness.

Japan is an advanced economy and Asian economic power. The country attained mixed growth having considerable volatility over four decades. During the period, domestic financial development (financial depth) increased and stock market development also showed upward trend. Degree of integration and volatility was quite low with robust level of financial development. Japan observed greater than Mean growth, trade openness and financial

development of the region (stock market development and financial depth). Average volatility experienced by the country was close to that of the region.

Let us see the statistics for Pakistan in respect of growth, financial development, degree of financial integration and macroeconomic volatility. Pakistan witnessed mixed trend of growth over the four decades. Trade openness showed an upward trend. However domestic financial development (financial depth) and stock market development were pathetically low. Degree of market integration and macroeconomic volatility were also low. Pakistan observed low level of growth a modest 1.53% over the last 53 years. Financial development remained pathetic. Degree of integration was observed as 1.8%. Volatility was also observed low. Summary statistics shows that mean growth of Pakistan is far below the panel mean growth. High standard deviation shows the volatile behavior of growth. Mean values of domestic financial development (financial depth) and stock market development are remarkably low as compared to the panel.

India the largest economy of south Asia observed mixed trends for growth and increasing trend of financial development (financial depth) and stock market development. Summary statistics for India shows that it observed greater than 3% growth over the last 53 years. However, its level of trade openness, and financial development (financial depth) were low. However, its degree of integration with the rest of the world financial markets was low; and macroeconomic volatility was also observed quite low. India's Mean growth is good; however, Mean values of trade openness, stock market development and domestic financial development (financial depth) are quite low. Table 5.2.15 in Appendix shows the summary statistics for India. Mean values of trade openness, stock market development and domestic financial development (financial depth) are quite low. Table 5.2.15 in Appendix shows the summary statistics for India. Srilanka observed mixed growth trend and increasing level of trade openness. However,

domestic financial development (financial depth) and stock market development were pathetic. Srilanka observed above 2% growth over the last 41 years. Trade openness was observed close to 75% of GDP. Financial development was very low with low volatility and market integration of 1.75%.

Summary statistics for New Zealand, a pacific region country, shows that the economy experienced overall upward trend for growth over four decades. Trade openness level was impressive and domestic financial development (financial depth) was high for the period. However, stock market development remained low for the period. Degree of integration remained volatile. Macroeconomic volatility was also volatile for the period. New Zealand observed a modest growth of above 1.5% over 53 years period. It experienced less than 60% of financial development (financial depth) in terms of domestic credit to GDP ratio and 40.5% in terms of market capitalization to GDP ratio. It has low degree of integration and low volatility. Average growth for the period was recorded less than that of the panel average. Average financial development was also far less than that of panel average. However, trade openness was promising as compared to the panel mean value of trade openness.

Iran experienced mixed growth slightly increasing trade openness and low financial development over the period. Iran observed greater than 2% of economic growth and modest level of trade openness. Level of financial development was low. Degree of market integration and volatility was close to 2.7%.

Comparing Iran with the sample, we reach a conclusion that the economy's growth is less than that of growth, trade openness and financial development is far below those of the sample.

Jordan, a Middle Eastern country, observed mixed and volatile growth over the period. Trade openness, domestic financial development (financial depth) and stock market development

showed an increase. Jordan experienced 2.5% growth over the last 53 years. Trade openness was quite high. Capital market development was comparatively high. The economy experienced low level of volatility and 3.7% degree of integration.

Summary statistics for Kuwait a Middle Eastern country and oil rich economy reflect that its Growth showed mixed trend over 50 year period. Trade openness showed an upward trend while domestic financial development and stock market development moved in an upward direction. Kuwait observed over 2.5% growth over the last 53 years. Its capital market development level was satisfactory. As compared to sample averages, mean value of domestic financial development is quite low. This may be attributed to less developed financial sector. However, stock market development is above the Mean value of sample.

The statistics for Saudi Arabia, a relatively less integrated country, reflects that Saudi Arabia observed a rather volatile growth. Trade openness and financial development was low .Summary statistics shows that Mean growth of the economy was high. Trade openness and financial development remained lower than those of panel Mean values. Saudi Arabia experienced robust growth of over 5% for the last 53 year period. Trade openness and stock market development were 65% and 60% respectively.

Oman, a Middle Eastern country and oil rich economy, witnessed the phenomenon of financial integration. The table 5.2.31 in Appendix shows that the country experienced declining trend of growth. Trade openness, domestic financial development and stock market development increased but at a slow rate. Macroeconomic volatility remained low. Summary statistics for Oman shows that it experienced around 2.5% growth over last 53 years. Level of trade openness and financial development were observed low. However, degree of integration and volatility was observed as 2.5% and 5.25% respectively. Growth was slightly higher than that of the panel.

However, trade openness, domestic financial development (financial depth) and stock market development were considerably low as compared to the Mean values of the panel.

Table 5.2.26 in Appendix presents summary statistics for Morocco a Middle Eastern economy. The statistics reflect mixed trend over a period of four decades. Growth trend has been mixed over a period of time. Trade openness, financial depth (stock market development and domestic financial development) showed an upward trend. Morocco observed above 2% growth over 41 years period. The economy experienced low volatility and its degree of integration with regional markets was 3.44%. However, financial development (financial depth) and trade openness remained low as compared to the panel averages of trade openness and financial development.

Summary statistics of United Arab Emirates (UAE) reveals that the country experienced mixed trend for growth over the period. There is a slight increase in trade openness, and financial development.UAE experienced a modest growth of 2% with low level of trade openness and financial development. Its integration with native markets is considerable. Average volatility of the economy is low as compared to the Mean volatility of the panel.

Summary statistics for Uganda, an African economy, reveals that Uganda observed mixed trend of growth with volatility in growth. Trade openness, domestic financial development and stock market development showed an upward trend. Uganda experienced negative average growth for the last 53 years. Moreover trade openness and level of financial development (financial depth and stock market development) were also low. However, macroeconomic volatility was also low.

Ghana, an African country, was included in sample. The table 5.2.11 shows that country experienced increasing growth over the period. The economy observed considerable increase in

Trade openness over a period and pathetic levels of financial development (stock market development and financial depth) over the period. The economy experienced less than 1% growth rate for the last 53 years on the average. However its level of trade openness remained high. Both measures of financial development remained considerably low. However, degree of market integration with other markets was comparatively better than that of other countries in the panel. Despite high level of trade openness, the economy experienced low macroeconomic volatility.

Table 5.2.29 in Appendix presents summary statistics for Nigeria. Nigeria had experienced mixed trend of growth and low level of trade openness and financial development (stock market development and financial depth).

Both indicators of financial development, stock market development and financial depth remained quite low for the period of observation. Degree of integration and macroeconomic volatility demonstrated mixed trend. Nigeria experienced an average growth rate of 2.6 % over 53 year's period. It experienced low level of trade openness and financial development. However, degree of financial integration and macroeconomic volatility was also low. The Mean value of growth statistics is higher than that of the panel. However, trade openness, stock market development and domestic financial development (financial depth) were considerably low as compared to the Mean values of the panel.

Zimbabwe experienced negative growth and volatility for many years. Trend for trade openness was upward while stock market development also increased over the period. The standard deviation shows that country observed considerable volatility in growth. Mean value of stock market development is close to the Mean value of panel. However, domestic financial development (stock market development and financial depth) on the average is quite low as

compared to the Mean value of panel. The range i.e. difference between maximum value and minimum value of all variables shows huge spread. Zimbabwe observed negative average growth rate for the period. Trade openness was satisfactory however financial depth was low. Stock market development touched about 75% of GDP while macroeconomic volatility was found low.

5.3 ESTIMATION OF PARAMETERS FOR GROWTH

Let us discuss the estimation of parameters of growth with the help of PMG Estimator. The detailed results of Pooled Mean Group Estimation show long run as well as country wide short run parameters of Model. The estimated equation is with one lag for dependent and independent variables on the basis of AIC. Table 5.3 shows the results of Pooled Mean Group (PMG) Estimation in the long run as well as in the short run. Financial openness is a long-run phenomenon. However, its short-run dynamics are also of interest important from empirical point of view. Short-run coefficients for trade openness and financial development tell us whether in the short run these parameters contribute to the growth. The Table shows that co integrating relationship exists. The variables of our proposed model, monetary union, and two proxies of financial development i.e. Capital market development (STCKMKTDEV) and Financial Depth (FINDEPTH) were found significant in the long-run. However, the variables Financial Depth (FINDEPTH) and Degree of financial integration (DFI) were also found significant.

Euro zone is of special interest because of economic relations between countries within Europe and monetary union between members of European Union (EU). EU is the most advanced model of economic and financial integration.

The study of financial integration of European Union helps appreciate the impact of common currency on growth and other benefits. Theoretically monetary union may lead to increased integration and possibly increased growth as well.

We have estimated coefficients for long run as well as short run for Euro area so that the impact of common currency may be observed along with other parameters. Table 5.3.1 provides the PMG results for Euro area. The estimated model contains one lag for both dependent and independent variables. One lag was introduced because independent and dependent variables are also influenced by their past values. Lags were introduced on the basis of Akaike Information Criteria (AIC). Table 5.3.1 presents the estimates of short-run and long-run parameters for European countries.

Table 5.3.1 states that in the long run both measures of financial development i.e. financial depth (FINDEPTH) and stock market development (STCKMKTDEV) were found significant. Trade openness (TRADEOPEN) was also found significant. When we estimated for large sample consisting of all regions, stock market development (STKMKTDEV) and financial depth (FINDEPTH) were also found significant. Investment-output ratio was also found significant in the long-run.

Table 5.3.1

Estimated Long-run & Short run Coefficients for European Countries DV: Growth

Regressors	Coefficients	Is Significant at 5%
FINDEPTH	0.0095(3.56)	Yes
STCKMKETDE	0.015 (4.83)	Yes
VTRADEOPEN	-0.024(-3.36)	Yes

HUMCAP	-0.009(-1.43)	No
INF	-0.009(-0.17)	No
I/Y	0.145(2.69)	Yes
Pop-G	-0.073(-0.24)	No
ΔFINDEPTH	0.017(0.45)	No
ΔSTCKMKETDEV	0.015 (4.83)	Yes
TRADEOPEN	0.112(3.07)	Yes
HUMCAP	0.119(1.33)	No
INF	-0.018(-0.12)	No
I/Y	0.0.253(1.63)	No
ECT	-0.549(-2.81)	Yes

Note: Value of test statistics have been shown in parenthesis.

In case of Euro area both variables financial depth (FINDEPTH) and stock market development (STCKMKTDEV) were found significant. This may be attributed to increased integration and financial depth. Variables degree of financial integration (DFI) was also found statistically significant. Thus it may be inferred that in the long-run financial depth, stock market development and trade openness contribute to growth for Europe. However, the contribution of monetary union was not found significant in the long-run.

In the short- run only stock market development (STCKMKTDEV) and trade openness (TRADEOPEN) were found positively significant thus contributing to growth. Other variables like human capital, inflation, investment-output ratio and labor growth were not found

significant. It may be interpreted that financial development has contributed towards growth in the short-run as well as in the long-run for Europe. However, trade openness contributed to growth only in the long-run. Moreover contribution of financial development in the short-run is higher than that of same in the long-run.

ASEAN is another region of our interest where the countries enjoyed significant economic and financial linkages. From ASEAN six countries were included in panel. Table 5.3.2 gives us long run as well as short run coefficients of variables in respect of ASEAN region. In the long run financial depth (FINDEPTH) and Trade openness (TRADEOPEN) were found significant. Thus in this case only Trade openness and domestic financial development contributed towards growth. Co-efficient of Stock market development (STCKMKTDEV) was found insignificant. It may be inferred that growth was effected by trade channel and financial depth. However, coefficient of trade openness (TRADEOPEN) was bigger in size than that of financial depth. Therefore in the long-run trade channel may be more effective for ASEAN to spur growth than financial development.

Short run co-efficients, too, did not speak in favor of financial development for enhancing growth. No parameter was found significant in the short-run. Trade openness appeared with positive sign but found insignificant. However, the intercept term was found significant which indicates the contribution of other factors towards growth independent of financial development and trade openness in the short-run. Let us look at Table 5.3.2 showing estimated long-run and short-run coefficients for the ASEAN Region.

The results for ASEAN region are interesting and far different from Euro area. In ASEAN region even the channel of trade could not help increase growth in the short-run. Both measures of financial development, i.e. stock market development (STCKMKTDEV) and

financial depth (FINDEPTH) failed to augment growth in the short-run. This may be attributed to the low level of financial development as compared to the European countries where level of financial development was high. However, in the long-run Trade openness (TRADEOPEN) and financial depth (FINDEPTH) were found significant for growth.

It is apparent that the results for ASEAN region are interesting and far different from Euro area. In ASEAN region even the channel of trade could not help increase growth in the short-run. Both measures of financial development, i.e. stock market development (STCKMKTDEV) and financial depth (FINDEPTH) failed to augment growth in the short-run. This may be attributed to the low level of financial development as compared to the European countries where level of financial development was high. However, in the long-run Trade openness (TRADEOPEN) and financial depth (FINDEPTH) were found significant for growth.

Table 5.3.2

Estimated Long-run & Short run Coefficients for ASEAN Region

Dependent Variable: Growth

Regressors	Coefficients	Is Significant at 5% level
TRADEOPEN	0.0706 (3.72)	Yes
FINDEPTH	0.0136 (2.70)	Yes
STCKMKTDEV	-0.0074 (-1.16)	No
HCAP	0.05(1.22)	No
INF	-0.45(-6.2)	No
I/Y	0.11(1.92)	No
POPG	2.31(1.69)	No

Δ TRADEOPEN	0.08507(1.03)	No
Δ FINDEPTH	0.0171 (0.68)	No
Δ STCKMKTDEV	-0.0199 (-0.53)	No
Δ HCAP	0.09(0.51)	No
Δ I/Y	0.055(0.22)	No
Δ INF	0.91(2.51)	Yes
ECT	-0.45 (-2.30)	Yes

Note: Values of t-statistics at 5% level of significance have been provided in parenthesis.

We have also estimated PMG regression for Asia Pacific & MENA region. This panel includes 20 countries. The estimated model includes one lag for dependent and independent variables. For Asia Pacific & MENA region, Trade openness (TRADEOPEN) and financial development, financial depth (FINDEPTH) as well as stock market development (STCKMKTDEV) was found significant in the long-run. Although co-efficient of trade openness was very small. It may be inferred that in the long run trade channel and financial development (stock market development and financial depth) did contribute to the growth for Asia Pacific & MENA region. However, the contribution of financial depth was wholesome. Table 5.3.3 provides results as under.

In the short run only one measure of financial development, financial depth (FINDEPTH) was found significant. It may be inferred that for Asia Pacific and MENA Region, capital market development i.e. STCKMKTDEV and trade openness did not contribute to the growth in the short-run. Moreover human capital, inflation, investment to output ratio and labor growth did not play any role in short-term growth. However in the long run, trade openness and financial development significantly contributed to the growth. The results are satisfactory given the long-term nature of financial openness.

In the short run only one measure of financial development, financial depth (FINDEPTH) was found significant. It may be inferred that for Asia Pacific and MENA Region, capital market development i.e. STCKMKTDEV and trade openness did not contribute to the growth in the short-run. Moreover human capital, inflation, investment to output ratio and labor growth did not play any role in short-term growth. However in the long run, trade openness and financial development significantly contributed to the growth. The results are satisfactory given the long-term nature of financial openness.

Table 5.3.3

Estimated Long-run & Short run Coefficients for ASIA PACIFIC & MENA Region

Dependent Variable: Growth

Regressors	Coefficients	Significant at 5%
TRADEOPEN	0.0093 (2.96)	Yes
FINDEPTH	0.10 (5.98)	Yes
STCKMKTDEV	0.0223 (3.26)	Yes
HCAP	0.003 (0.23)	No
INF	-0.57 (-7.6)	Yes

I/Y	0.68 (5.28)	Yes
POPG	-0.23 (-0.24)	Yes
Δ TRADEOPEN	0.1801(1.95)	No
Δ FINDEPTH	0.095 (2.90)	Yes
Δ STCKMKTDEV	0.0232 (1.54)	No
Δ HCAP	0.39 (0.94)	No
Δ INF	0.37 (1.35)	No
Δ I/Y	0.29(0.87)	No
ECT	-0.75 (-5.3)	Yes

Note: Values of t-statistics at 5% level of significance have been provided in parenthesis.

Let us see the short-run dynamics of the Model. Table 5.3.4 shows the results of PMG Estimation results for countries of Europe. The table explains whether growth is achieved via trade openness and financial development in the short-run.

After estimating parameters of growth in respect of Europe, now let us estimate the same for different countries of Europe. Thus we will have country specific short-term coefficients of independent variables for Europe.

Austria has experienced significant role of trade openness in the short-run while no role of financial development was observed. For Austria average figure for DFI did not exceed 12% which shows that the country is yet to increase its financial openness with the world. A healthy

co-efficient for intercept term shows that growth of Austria in positively influenced by factors other than financial development. Investment –output ratio and human capital was found significant.

Cyprus experienced no role of trade openness and financial development in the short-run. However, a robust and significant intercept term speaks for other channels that contribute to growth in the short-run. In case of Denmark, trade openness and domestic financial development i.e. financial depth (FINDEPTH) were found significant. Degree of integration (DFI) of Denmark is not strong and its average growth rate is modest.

Finland is member state of EU and experienced satisfactory growth over a period. Its capital market development is above 80% of GDP. In the short-run trade openness was found significant in contributing towards growth. Stock market development was found significant. Finland is well integrated with other EU markets but this integration in the short-run did not appear to be fruitful for growth.

Table 5.3.4

Estimated Coefficients for European Countries

Dependent Variable: Growth

Counrtry	*Tradeopen*		*FINDEPTH*	*Stckmktdev*	*HCAP*	*ECT*
Austria	0.24(8.5)	-0.08(-1.5)	-.001(-0.1)	0.16(3.23)	0.21(3.83)	-.7(-7.3)
Cyprus	0.09(1.3)	0.03(1.06)	-0.02(1.58)	0.19(4.25)	0.007(0.20)	-1.3(-7.6)
Denmark	0.05(6.79)	0.02(7.4)	-0.01(-0.6)	0.024(3.43)	0.28(6.54)	-1.2(-6.2)
Finland	0.68(4.9)	-.12(-1.5)	0.04(6.06)	0.07(2.73)	0.94(19.73)	-.75(-6.2)
France	0.01(10.1)	0.07(0.65)	0.016(3.2)	0.02(6.06)	1.09(3.03)	-0.8(-3.9)
Germany	0.27(3.81)	-0.2(-2.64)	-.03(-1.09)	0.16(2.66)	0.74(11.7)	-0.9(-6.7)
Greece	0.07(1.81)	0.009(3.7)	0.001(0.06)	0.18(10.18)	0.81(3.81)	-0.2(-1.3)

Hungry	0.03(1.01)	0.18(2.35)	0.02(2.17)	0.02(0.49)	0.83(8.72)	-0.7(-5.3)
Ireland	0.02(2.06)	0.029(2.31)	0.08(4.1)	0.01(2.6)	0.005(0.55)	-1.07(-8.1)
Luxemburg	0.21(5.5)	-0.3(-1.4)	-0.002(-0.3)	0.43(3.6)	0.03(1.32)	-0.8(-5.2)
Netherlands	0.2(1.26)	0.13(4.16)	0.01(3.75)	0.04(6.3)	0.84(3.09)	-0.5(-2.7)
Norway	0.11(12.4)	0.16(3.21)	-0.02(-0.2)	0.10(3.1)	0.10(0.52)	-1.1(-4.3)
Portugal	0.5(10.01)	0.18(11.7)	-0.07(-0.8)	0.31(5.2)	0.97(1.54)	-0.4(-2.5)
Spain	0.02(0.12)	0.06(0.67)	0.01(0.18)	0.05(2.3)	-0.79(-3.4).	-0.41(-2.3)
Switzerland	-0.02(0.3)	0.18(19.39)	-0.01(-1.4)	1.41(4.72)	0.90(4.2)	-0.8(-4.3)
Sweden	0.2(2.62)	0.18(2.84)	0.001(2.09)	0.012(4.7)	0.55(5.5)	-0.4(-2.6)
UK	0.019(9.1)	-0.1(-1.25)	-0.03(-0.2)	0.004(1.85)	0.56(21.2)	-0.8(-5.4)

Note: Values of test-statistics at 5% level of significance have been provided in parenthesis

Let us see the short-run dynamics of the Model. Table 5.3.4 shows the results of PMG Estimation results for countries of Europe. The table explains whether growth is achieved via trade openness and financial development in the short-run.

After estimating parameters of growth in respect of Europe, now let us estimate the same for different countries of Europe. Thus we will have country specific short-term coefficients of independent variables for Europe.

Austria has experienced significant role of trade openness in the short-run while no role of financial development was observed. For Austria average figure for DFI did not exceed 12% which shows that the country is yet to increase its financial openness with the world. A healthy co-efficient for intercept term shows that growth of Austria in positively influenced by factors

other than financial development. Investment –output ratio and human capital was found significant.

Cyprus experienced no role of trade openness and financial development in the short-run. However, a robust and significant intercept term speaks for other channels that contribute to growth in the short-run. In case of Denmark, trade openness and domestic financial development i.e. financial depth (FINDEPTH) were found significant. Degree of integration (DFI) of Denmark is not strong and its average growth rate is modest.

Finland is member state of EU and experienced satisfactory growth over a period. Its capital market development is above 80% of GDP. In the short-run trade openness was found significant in contributing towards growth. Stock market development was found significant. Finland is well integrated with other EU markets but this integration in the short-run did not appear to be fruitful for growth.

France is the second largest economy of Europe. Trade openness, human capital and investment to output ratio was found significant. It may be inferred that growth of France is not attributed to financial development in the short run. Germany is the largest economy of Europe.

Results show that trade openness contributed significantly in enhancing growth in the short-run. However, other parameters, financial development did not play any role in effecting growth in short-run. Germany had a robust intercept term which shows the role of other factors in affecting growth. Human capital and investment-output ratio did influence growth in the short-run.

Greece did not experience any role of trade openness and in enhancing growth in the short run. It observed positive role of financial depth, human capital and investment-output ratio.

It is interesting that average growth for may be result of other macroeconomic factors along with financial depth.

In case of Hungary both measures of financial development, financial depth (FINDEPTH) and stock market development (STCKMKTDEV) were found significant. However, trade openness (TRADEOPEN), was not found significant. However investment to output ratio and labor growth had a significant coefficient.

Ireland experienced positive role of trade openness and financial development and degree of financial integration in the short-run. However, investment to output ratio was not found significant. Moreover labor growth rate was found significant. A healthy intercept term shows the role of other factors in enhancing growth. For Luxemburg only human capital was found significant for growth. Other parameters, like trade openness and financial development were not found significant. For Netherlands mean growth was observed below 1.3%. The coefficients of financial depth, stock market development, human capital and investment-output ratio did influence growth in the short-run.

Norway, a Scandinavian country, experienced positive role of financial depth, trade openness and human capital. Portugal witnessed influence of trade openness , financial depth and human capital on growth. Spain experienced no role of financial development and trade openness in the short-run. It implies that the growth of these economies owes to the other economic factors. This also reflects the role of other macro-economic factors in growth of these countries.

In case of Sweden, co-efficients for trade openness and stock market development were found significant. Human capital and investment to output ratio also contributed to growth. Switzerland experienced positive role of financial depth, human capital and investment to output ratio. For United Kingdome no parameter was found significant except trade openness and

investment to output ratio. It implies that the growth of UK economy is not attributed financial development.

Let us look at the short-run dynamics of ASEAN region. Table 5.3.5 provides the country wise results for the region.

For Indonesia and Malaysia, trade openness and financial development were found significant. Both Malaysia and Indonesia observed their growth influenced by trade openness and financial development. It is interesting that both measures of financial development i.e. stock market development (STCKMKTDEV) and financial depth (FINDEPTH) contributed towards growth. Thus Indonesia observed positive contribution of financial openness in the short-run. Japan was included being the developed economy and having developed financial system.

Table 5.3.5

Estimated Short run Coefficients for ASEAN Region

Dependent Variable: Growth

Country	*TRADEOPEN*	*FINDEPTH*	*STKMKTDEV*	*HCAP*	*I/Y*	*INF*
Indonesia	0.06(2.7)	0.03(2.35)	0.10(4.4)	0.20(4.35)	0.08(0.52)	1.6(5.6)
Japan	0.03(1.1)	-0.04(-0.1)	0.03(8.06)	0.27(2.2)	0.01(1.52)	- 0.08(-6.5)
Malaysia	0.02(2.27)	0.01(2.07)	0.03(4.4)	0.562(1.61)	1.26(3.13)	0.60(1.19)
Philippines	0.02(0.97)	-.01(-0.11)	-0.001(-0.1)	0.13(1.84)	0.008(0.34)	0.89(5.72)
Singapore	0.18(2.55)	0.02(2.6)	-0.01(-1.8)	0.18(2.01)	0.17(4.3)	0.16(4.79)
Thailand	0.34(1.8)	-0.13(-0.8)	0.12(8.4)	0.87(6.29)	0.63(3.44)	2.22(7.24)

Hong Kong	0.21(0.8)	0.004(0.1)	0.01(0.66)	0.35(3.1)	0.89(2.74)	1.57(3.31)

Note: Values of test-statistics at 5% level of significance have been provided in parenthesis

For Indonesia and Malaysia, trade openness and financial development were found significant. Both Malaysia and Indonesia observed their growth influenced by trade openness and financial development. It is interesting that both measures of financial development i.e. stock market development (STCKMKTDEV) and financial depth (FINDEPTH) contributed towards growth. Thus Indonesia observed positive contribution of financial openness in the short-run.

Japan, the largest economy of the region, did not experience the benefit from financial openness in the short-run. Stock market development was found significant in the short run.

This implies that Japan's growth is attributed to internal factors along with stock market development. Singapore experienced positive role of trade openness and financial depth in the short-run. Singapore is financially developed country and trade channels and financial development contributed to her growth in the short-run. However Philippines, Thailand and Hong Kong did not experience significant role of trade openness and financial development. However, Thailand experienced positive role of stock market development. 'Let us turn to our third panel, Asia Pacific & MENA Region. This Panel includes countries from Asia Pacific, Middle East and North Africa. For Australia financial development was found positive but insignificant. Australia achieved average growth rate of around 2% over the last 50 years. It implies that Australia's short-term growth is dependent on factors other than trade openness and

financial development like investment to output ratio and human capital. Bangladesh did not witness role of trade openness and financial depth in the short-run. However stock market development was found significant. Bangladesh's average growth rate has been less than 1.8% and this may be due to low level of financial development and trade openness. Trade openness has been less than 30% of GDP on the average. Moreover, financial depth (FINDEPTH) and Capital Market Development, (STCKMKTDEV) have been pathetic low at 21% and 5.5% of GDP. The Table 5.3.6 provides estimates of short-run slope coefficients and intercepts for our Panel comprising of countries from ASIA PACIFIC & MENA Regions.

Table 5.3.6

Estimated Short run Coefficients for ASIA PACIFIC & MENA Region (DV: Growth)

Country	*Tradeopen*	*FINDEPTH*	*Stckmktdev*	*HCAP*	*I / Y*	*INF*	*POPG*
Australia	-0.06(-0.4)	0.05(0.65)	-0.02(-1.5)	0.06(3.4)	0.4(4.56)	-.05(-7.2)	-1.3(-10.73)
Bangladesh	0.08(1.3)	0.08(0.63)	0.06(4.53)	0.05(1.47)	1.15(1.06)	0.03(0.79)	-6.8(-0.21)
India	-0.09(-1.3)	0.25(1.18)	0.21(8.6)	-.44(-1.48)	0.46(3.56)	0.44(4.56)	1.92(0.56)
New Zealand	0.61(1.8)	-0.5(-0.96)	-0.14(-0.55)	1.9(11.07)	1.2(1.89)	1.65(1.63)	13.6(0.54)
Pakistan	0.14(2.91)	0.17(0.87)	0.1(5.20)	1.06(3.2)	.76(4.35)	0.46(3.65)	10.8(0.62)
Srilanka	0.15(2.83)	0.2(2.2)	0.11(1.47)	1.14(1.91)	.24(0.25)	-0.26(-7.1)	-27(-0.77)
Bahrain	-0.03(-1.5)	0.14(3.99)	0.042(2.5)	0.58(1.85)	0.6(2.56)	-0.30(-3.21)	-4.3(-0.55)
Egypt	0.001(0.02)	0.14(1.82)	-0.03(-1.74)	1.3(2.45)	0.5(3.12)	0.02(2.75)	1.32(1.87)
Ghana	0.02(1.28)	0.03(0.24)	-0.04(-1.54)	0.52(1.23)	1.3(2.34)	-0.03(-3.4)	2.1(1.96)
Iran	0.12(0.57)	0.21(1.63)	0.03(0.28)	2.14(0.88)	1.5(2.93)	1.2(2.35)	5.6(2.36)

Jordan	0.04(0.6)	-.27(-0.97)	0.06(1.18)	1.98(2.54)	2.3(4.3)	1.53(1.66)	-2.3(1.33)
Kuwait	0.06(0.52)	-0.16(-1.7)	0.04(1.8)	0.03(1.56)	1.3(2.64)	0.36(1.74)	1.54(1.93)
Morocco	-.001(-.02)	0.12(1.36)	0.05(1.75)	1.25(3.1)	2.6(3.2)	0.56(2.1)	1.77(1.96)
Nigeria	0.11(2.09)	0.13(2.82)	0.07(2.57)	1.45(2.36)	3.5(2.59)	1.59(0.88)	1.52(1.87)
Oman	-0.07(-0.7)	0.19(2.3)	0.03(0.84)	0.85(2.45)	.94(1.89)	0.98(1.68)	2.7(3.42)

Saudi Arabia	0.6(4.95)	0.42(2.5)	0.01(0.53)	0.56(2.1)	.89(1.32)	2.4(1.74)	3.1(1.91)
Turkey	0.24(1.21)	0.03(0.22)	0.001(0.05)	2.1(4.6)	.94(2.74)	1.78(2.6)	4.3(1.63)
Uganda	1.51(6.5)	-1.73(-6.74)	008(2.44)	2.4(2.1)	1.9(2.85)	-0.56(-2.5)	-2.3(-2.68)
UAE	0.23(1.89)	0.06(0.14)	0.013(0.28)	2.1(1.75)	1.6(2.63)	-0.64(-2.43)	2.3(2.08)
Zimbabwe	0.02(0.08)	-0.09(-1.18)	0.02(0.81)	3.31(0.77)	1.9(2.69)	-0.89(-1.29)	3.4(1.99)

Note: Values of test-statistics at 5% level of significance have been provided in parenthesis

Let us interpret the results of the table for other countries. India is the largest economy of south Asia. In case of India financial depth, and trade openness was not found significant for growth. However stock market development was found significant along with investment to output ratio. For New Zealand the co-efficient of trade openness was positive but insignificant. Human capital contributed to growth.

Pakistan experienced positive role of stock market development (STCKMKTDEV) and trade openness in the short run for its growth. The co-efficient of trade openness (TRADEOPEN) was also found significant. It may be inferred that in the short run, Pakistan may increase her growth with stock market development and international trade in the short-run. However, the co-efficient of financial depth (FINDEPTH) was not found significant. Investment to output ratio was found significant.

Srilanka observed the positive role of financial depth (FINDEPTH) and trade openness (TRADEOPEN) for its growth in the short-run. These two parameters considerably contributed to its growth. Thus Srilanka has a potential to enhance growth through trade channel and financial depth in the short run. However, role of stock market development (STCKMKTDEV) was not found significant for growth of economy.

Bahrain is well integrated with Middle Eastern financial markets. For Bahrain both

measures of financial development, Stock market development (STCKMKTDEV) and financial

depth (FINDEPTH) were found significant. Thus Bahrain may increase her growth through channel of financial development. However, the co-efficient of financial depth (FINDEPTH) was higher than that of stock market development (STCKMKTDEV).For Egypt no parameter was found significant except investment to output ratio and human capital. The reason may be considerable low level of financial development (both financial depth and stock market development). The average growth of 2.94% achieved by the Egypt may be attributed to the internal strength of the economy. For Ghana no variable of financial development, trade openness and degree of financial integration was found significant. Summary statistics for Ghana provides explanation to this in the form of pathetic low level of financial development. Average growth was also observed below 1%. Iran and Jordan did not experience positive significant role of financial development and trade openness. Both countries did not achieve satisfactory level of financial development. However, abundance of natural resources contributed to the growth of Iran and Jordan in the short-run. In case of Jordan, human capital and investment to output ratio was found significant for growth.

Kuwait and Morocco achieved above 2% average growth rate over the last 50 years but this growth was due to their internal factors i.e. availability of natural resources. Level of financial development for Kuwait and Morocco was low thus was not capable of affecting growth. For Morocco human capital and investment to output ratio was found significant.

Nigeria is an important and resource rich African economy. The results show that for Nigeria financial development i.e. financial depth (FINDEPTH) and Capital market development (STCKMKTDEV) and human capital (HCAP) positively influenced growth. In case of Oman measure of financial depth (FINDEPTH) and human capital (HCAP) were found significant for growth in the short run. For Saudi Arabia, trade openness (TRADEOPEN) and financial depth

(FINDEPTH) were found significant. It implies that Saudi Arabia may increase its growth with trade channels and financial development.

In case of Turkey no variable was found significant for growth except human capital and investment to output ratio. Turkey is a middle income country and achieved average growth rate of above 2.4%. It means trade openness level was around 51% of GDP while financial development was pathetic low. Surely this low level of financial development could not spur growth in the short run. Uganda experienced positive significant role of trade openness, Stock market development and investment to output ratio in the short-run. For UAE no variable except investment to output ratio was found significant. Average financial depth for UAE was below 8% while stock market development was around 25% of GDP. This may be the reasons why were these parameters unable to contribute to growth? For Zimbabwe no parameters of our independent variables were found significant except investment to output ratio. Average growth rate for Zimbabwe was negative and financial depth was below 30% of GDP. Thus under development of financial sector may be one of the reason for not having growth spurred by financial development.

5.4. ESTIMATION OF PARAMETERS OF MACROECONOMIC VOLATILITY

Let us discuss the estimation results of equation of macroeconomic volatility. The slope and intercept parameters of model have been estimated with PMG Estimator. Table 5.4 shows long run as well as short run co-efficient of trade openness (TRADEOPEN), capital market development (STCKMKTDEV) and financial depth (FINDEPTH). Table 5.4 shows the estimation of parameters of financial development, monetary union and trade openness on

macroeconomic volatility (MEV).The table explains that both measures of financial development, i.e. financial depth, (FINDEPTH) and Stock market development (STCKMKTDEV) were found significant in the long-run for all countries of the Panel. The negative sign of co-efficients of FINDEPTH and STCKMKTDEV shows that these variables serve to reduce the volatility in the long-run. Degree of integration (DFI) has small coefficient but found significant in the long-run. Variable for monetary union, DMU was found significant with appropriate sign in the long run though the magnitude of co-efficient was small. It implies that in the long-run financial development and monetary union may help to reduce macroeconomic volatility for Europe, ASEAN, and Asia Pacific & MENA regions. The results indicate that stock market development and financial depth play major role in the long run to curb macroeconomic volatility. Co-efficient of DFI and DMU were found small thus indicating minor impact on volatility in the long-run.

Table 5.4

Estimated Long-run & Short run Coefficients for EU, ASEAN, and Asia Pacific & MENA

Dependent Variable: Macroeconomic volatility (MEV)

Regressors	Coefficients	Is Significant at 5%
TRADEOPEN	7.03e(0.42)	No
FINDEPTH	-9.04e(-2.04)	Yes
STCKMKTDEV	-0.151(-2.45)	Yes
DFI	-1.09e(-2.11)	No
DMU	-0.0002(-2.22)	Yes
Δ TRADEOPEN	0.002(0.42)	No
Δ FINDEPTH	-0.0003(-2.32)	Yes

Δ STCKMKTDEV	-0.066(-2.73)	Yes
Δ DFI	-0.001(-3.01)	Yes
Δ DMU	-0.001(-1.09)	No
Constant	0.004(4.12)	Yes
ECT	-1.3(-2.74)	Yes

Note: Values of test-statistics at 5% level of significance have been provided in parenthesis.

Let us interpret parameter estimates for the short-term. In the short-run both measures of financial development i.e. financial depth (FINDEPTH) and stock market development (STCKMKTDEV) were found significant with appropriate sign. These parameters serve to reduce macroeconomic volatility in the short-run. However, trade openness and monetary union were not found significant although DMU took negative sign. Financial development was proved instrumental in the long-run and short run in minimizing volatility. However monetary union (DMU) and DFI were found significant only in the long-run.

Let us look at the estimation results of our three panels, i.e. Euro area, ASEAN and Asia Pacific& MENA and see whether the results obtained from Large Panel data are valid for individual regions or not? We will first take the Europe and see how did European countries experience the effect of above said variables on macroeconomic volatility? Table 5.4.1 gives us the country wise results of PMG estimation for the region. The estimated model is an ARDL (1, 1, 1, 1, 1) with one lag term for dependent and independent variables. The table gives us short run behavior of the parameters.

The table shows that in case of Austria, the role of financial depth (FINDEPTH) in curbing volatility was found significant with appropriate sign. Other parameters of independent variables also took negative sign but were not found significant in the short-run. For Cyprus no parameter was found significant. Denmark also did not experience role of financial development

and trade openness in curbing volatility in the short-run. Finland experienced role of trade opennness and financial development in reducing volatility. Financial depth and stock market development were found significant in curbing volatility for France. For Germany no parameter was found significant in reducing volatility.

Table 5.4.1

Estimated Short run Coefficients for European countries

Dependent Variable: Macroeconomic volatility (MEV)

Country	*Tradeopen*	*FINDEPTH*	*Stckmktdev*	*DMU*	*Constant*	*ECT*	***ECT***
Austria	-3.2e(-0.4)	-5.9e(-2.34)	5.3e(-0.13)		.001(2.4)	-1.1(-4.4)	
Cyprus	.0001(0.54)	-.0003(-.85)	6.17e(0.3)		.003(2.9)	-1.08(-4.5)	
Denmark	-1.09e(-0.5)	6.78e(0.11)	6.5e(0.07)		-9.8e(-.05)	.00(0.002)	
Finland	-.001(-2.4)	-0.001(-2.4)	3.9e(0.41)		.001(4.1)	-1.3(-6.02)	
France	8.7e(2.9)	-1.8e(-2.08)	-1.6e(-2.8		.001(2.1)	-0.7(-3.7)	
Germany	-.002(-0.67)	3.6e(0.07)	-7.4e(-0.5)	-.001(-.1)	.003(1.6)	-0.9(-4.2)	
Greece	-.0001(-2.6)	0.001(2.3)	.00(1.7)	-.003(-2.1)	.001(4.1)	-1.3(-8.1)	
Ireland	-3.6e(-1.8)	1.6e(-2.6)	-2.5e(-3.4)	-.001(-2.7)		-1.6(-7.9)	
Luxemburg	-0.003(-3.1)				.001(1.5)		
Netherlands	-4.02e	-1.8e	-7.2e		.001(1.6)	-0.9(-4)	
Norway		0.16(0.74)	-0.02(-2.2)		.002(1.9)	-0.7(-3.2)	
Portugal	0.26(1.4)	-0.06(-2.54)	-0.11(-2.1)	-5.4(-1.5)	1.6(1.4)	-0.5(-2.9)	

Spain	-.003(-2.6)	-0.002(-0.4)	0.01(0.6)	-.03(-1.5)	.01(1.5)	-0.8(-3.9)
Sweden		-6.5e(-0.4)	-1.4e(-1.2)			-1.4(-6.1)
Switzerland	5.8e	-6.2e	5.9e			-0.9(-3.6)
U K	4.01e	-0.002(-2.1)	-5.8e(-2.3)		.03(2.3)	-1.17(-6.1)

Note: Values of test-statistics at 5% level of significance have been provided in parenthesis

Greece did not experience role of financial development in minimizing volatility. However, trade openness and monetary union were found significant but with small co-efficient. Therefore trade openness and monetary union may impact macroeconomic volatility to a small extent. In case of Ireland, financial development and monetary union played a significant role in curbing volatility in the short-run. For Luxemburg trade openness was found significant but coefficients of other independent variables were not found significant. Netherland did not experience the role of financial development and monetary union in reducing volatility in the short-run.

Let us discuss Norway where stock market development was found significant in curbing volatility. In case of Portugal both measures of financial development, financial depth, (FINDEPTH) and stock market development (STCKMKTDEV) were found significant in the short-run. Trade openness was found significant for Spain. However, other dependent variables (financial development, degree of integration and monetary union) were not found significant. Sweden and Switzerland did not experience any significant role of financial development, monetary union and trade openness in the short-run. Moreover financial depth (FINDEPTH) and stock market development (STCKMKTDEV) was found significant for UK in curbing volatility in the short-run.

Let us take up ASEAN Region. Table 5.4.2 provides short-run dynamics of our variables in respect of countries of ASEAN region. The estimated model is an ARDL (1, 1, 1, 1, and 1) model with one lag for dependent and independent variable.

Table 5.4.2

Estimated Short run Coefficients for ASEAN Region

Dependent Variable: Macroeconomic volatility (MEV)

Country	*Tradeopen*	*FINDEPTH*	*Stckmktdev*	*Constant*	*ECT*
Indonesia	0.001(1.7)	-.002(-2.02)	.006(1.4)	0.08E2(2.7)	-1.4(-4.1)
Japan	-3.2e	9.85e	-.001(-2.06)	0.001(4.1)	-1.2(-5.5)
Malaysia	0.001(3.3)		3.8e	0.004(2.2)	-0.5(-3.4)
Philippines	0.02(0.9)	-0.03(-2.4)	-0.01(-2.3)	1.01(0.8)	-0.36(-2.5)
Singapore	-0.15(-2.2)	-0.01(-0.4)	-0.01(-2.18)	-0.6(-1.8)	-0.2(-1.9)
Thailand	-0.28(-2.4)	-0.06(-2.1)	-0.01(-0.11)	3.6(1.7)	-1.1(-4.9)
Hong Kong	9.28e(0.9)	-6.4e(-0.2)	-9.8e(-2.6)	0.001(1.6)	-0.6(-2.7)

Note: Values of Test-statistics at 5% level of significance have been provided in parenthesis

Let us first take Indonesia an important ASEAN economy. In the short-run variable financial depth (FINDEPTH) was found significant in curbing volatility. Although the magnitude of co-efficient of financial depth is not big, yet it took appropriate sign. However, coefficients of

other independent variables were not found significant. Japan is the largest economy of the region and it experienced significant role of stock market development (STCKMKTDEV) in reducing volatility. For Malaysia financial depth (FINDEPTH) was found significant in the short-run. Financial development was also found significant for Philippines in the short run in curbing macroeconomic volatility. Both measures of financial development i.e. financial depth (FINDEPTH) and stock market development (STCKMKTDEV) were found significant.

Singapore is a small economy with developed financial system. Trade openness and stock market development were found significant in the short run in reducing volatility. Thailand also experienced significant role of financial depth (FINDEPTH) and trade openness in the short-run. Hong Kong is one of the most financially developed economies. In case of Hong Kong stock market development (STCKMKTDEV) was found significant in reducing volatility in the short-run. Coefficients of other variables like financial depth and trade openness were not found significant in the short run in reducing volatility.

Our third panel consists of countries from Asia Pacific & MENA region. Table 5.4.3 gives us short-run behavior of our variables of interest and reflects how macroeconomic volatility is affected in the short-run in the presence of these variables. Table 5.4.3 provides short-run estimates of parameters of variables in respect of countries pertaining to Asia Pacific &MENA Region. The estimated model is an ARDL (1, 1, 1, 1,1). The model explains up to what extent the variables of our model, i.e. financial development, trade openness, and monetary union may influence macroeconomic volatility in the short-run. Let us explain the results of PMG estimation. The first country of this panel, Australia is financially advanced and resource rich country. Both parameters of financial development i.e. stock market development and financial depth were found significant. Trade openness was not found significant. However, magnitude of

co-efficients was not big enough. In short run the error correction term with negative sign shows 30% speed of adjustment. Thus financial development may serve to reduce volatility in the short run for Australia.

Table 5.4.3
Estimated Short run Coefficients for ASIA PACIFIC & MENA Region
Dependent Variable: Macroeconomic volatility (MEV)

Country	*Tradeopen*	*FINDEPTH*	*Stckmktdev*	*Constant*	*ECT*
Australia	0.002(1.6)	-0.0002(-2.6)	-0.001(-2.5)		-0.3(-1.2)
Bangladesh		0.003(0.7)	-.003(-2.17)		-0.7(-3.1)
India	0.00(1.6)	-0.001(-2.1)	1.02E(0.09)	0.001(4.7)	-1.4(-7.8)
N ZL	-0.0002	-0.00031	0.000	0.001(2.5)	-1.02(-4.6)
Pakistan	-0.001(-2.2)	-0.004(-2.7)	-0.0001	0.001(3.6)	-0.67(-3.1)
Srilanka	0.0001	-0.002(-2.2)	-0.001(-2.5)	0.0003	-0.05(-0.2)
Bahrain	-0.001(-2.8)	-0.007(-6.4)	6.39e(0.2)	-0.001	0.21(0.92)
Egypt	0.000	0.0005	-.005(-2.23)	0.14(3.6)	-1.2(-5.7)
Ghana	-0.001(-2.2)	0.003	-0.003(-4.8)	0.011	-0.51(-4.2)
Iran	0.0001	-0.0004	0.0006	0.012(2.1)	-1(-3.5)
Jordan	-3.8e	0.00005	7.99e	0.003(2.2)	-0.8(-3.7)
Kuwait	-0.007	-0.001(-2.4)	-.0007(-2.7)	0.01(2.8)	-0.7(-3.8)
Morocco	-0.0002	0.00003	0.00004	0.002	-0.8(-3.7)
Nigeria	-0.002(-2.6)	-0.003(-2.31)	0.00006	0.02(3.1)	-0.8(-4.2)
Oman	0.0006	0.0010	0.000023	0.019	-0.39
KS A	0.57(4.4)	-0.4(-1.8)	0.0104	4.3(4.6)	-1.3(-10)
Turkey	0.25(1.2)	-0.001(-2.3)	-0.01(-2.14)	2.7(2.8)	-0.8(-3.6)

Uganda	-.005(-10.4)	-0.006(-2.4)	-0.004(-4.1)	0.01(14.4)	-1.5(-19.5)

UAE	-0.001(-2.3)	0.0005	0.0002	0.0008	-0.49
Zimbabwe	-0.005(-2.5)	-0.001(-6.03)	-0.004(-2.1)	0.01(4.14)	-0.8(-5.7)

Note: Values of test-statistics at 5% level of significance have been provided in parenthesis

For Bangladesh, only one parameter, i.e. stock market development was found significant having negative sign thus helping to curb the volatility. For India financial depth denoted by FINDEPTH was found significant in the short-run. Slope parameters of other variables were not found significant. In case of New Zealand, no slope parameter of financial development and trade openness was found significant. For New Zealand, degree of integration with other markets was not high. Low level of financial development for New Zealand may be a reason as to why did financial development not contribute to curb volatility in the short-run?

Let us discuss Pakistan which experienced significant role of trade openness and financial depth in the short run in curbing volatility. Thus macroeconomic volatility may be reduced to some extent with more financial development and trade openness. Srilanka also witnessed positive significant role of financial development (financial depth and stock market development) in the short-run in curbing volatility.

In case of Bahrain, trade openness and a proxy of financial development i.e. financial depth was found significant to influence macroeconomic volatility. For Egypt only one variable i.e. stock market development was found significant in the short-run. Ghana witnessed positive and significant role of stock market development and trade openness in curbing volatility. Iran and Jordan did not experience any role of financial development and trade openness in the short-run. Both Iran and Jordan did not enjoy considerable level of financial development therefore financial development was not found significant in reducing volatility in the short-run.

Both measures of financial development, financial depth (FINDEPTH) and stock market development (STCKMKTDEV) were found significant for Kuwait. However, Morocco did not experience significant role of any of the variable in curbing volatility.

Nigeria is an important economy of Africa. In the short-run trade openness and financial depth were found significant for Nigeria in reducing macroeconomic volatility. Oman and Saudi Arabia did not experience significant role of any variable in the short-run. Turkey has a rather developed financial system and thus financial development proved fruitful for Turkey in the short-run. Both aspects of financial development i.e. Stock market development and financial depth were found significant in curbing volatility in the short-run for Turkey. For Uganda trade openness and both measures of financial development, i.e. financial depth and stock market development were found significant in curbing volatility. For UAE only trade openness was found significant and other parameters did not contribute in curbing volatility. Zimbabwe observed positive significant role of financial development and trade openness in curbing volatility. Both parameters of financial development, i.e. financial depth and stock market development served to curb macroeconomic volatility for Zimbabwe in the short-run.

5.5. DISCUSSION ON CROSS SECTION WISE GROWTH

The parameters of General equation of Growth were estimated. The model shows that stock market development, trade openness contribute to growth.

Let us consider region specific and country specific estimates of growth for different regions and countries. For Panel comprising of Asia Pacific & MENA region coefficients of stock market development and financial depth were found significant in the long run. Financial

depth played a major role in promoting growth. More focus on financial depth may give rise to higher growth. In the short run only financial depth contributed to the cause of growth.

For Asia Pacific & MENA for which financial development was found significant in the short-run. Let us discuss one by one and start with Australia to see how is growth influenced by financial development and other parameters?

Estimation results for Australia show that financial depth and degree of integration may contribute to growth. Thus Australia may augment its growth by focusing on financial depth and more integration. The negative co-efficient of trade openness for Australia in the short-run may be due to adverse balance of trade.

Bahrain may increase its growth by having more financial depth and stock market development. However, financial depth would have more robust contribution in growth than stock market development. The co-efficient of trade openness assumed negative sign which may reflect adverse balance of trade with other nations in the short-run.

In case of Oman financial depth may considerably contribute to growth. Other parameters were not found significant in the short-run. Significant intercept reflects the contribution of other factors to short-term growth. However, focus on financial depth may help Oman to achieve more growth in the short-run.

For Egypt financial depth may contribute to growth in the short-run. Egypt experienced little role of trade channel in growth. The negative co-efficient for stock market development is due to less market capitalization and less developed capital market. Degree of integration did not support the cause of growth in the long-run.

Estimation results for Saudi Arabia show that by increasing financial depth, growth may be increased. The contribution of stock market development was little. Trade openness contributed considerably to growth. Very robust intercept shows the considerable contribution of other factors (natural resources) besides these parameters.

In case of Bangladesh financial depth and trade channel may contribute to growth. Major contribution might be made by financial depth. The contribution of stock market development to growth was not considerable and therefore financial depth may be focused on. Moreover, trade channel and degree of financial openness may support growth in the short-run.

For Pakistan short-term growth may be increased by having more financial depth. The contribution of financial depth was more than that of stock market development and trade openness. Degree of financial openness served to support growth. Trade channel also made considerable contribution to growth. Higher co-efficient of financial depth reflects more role of rather developed banking sector of Pakistan. Small co-efficient for stock market development reflects little contribution of capital market due to volatility in the capital market.

For Srilanka it may be inferred that Growth may be increased in the short-run by focusing on financial depth and trade openness. Stock market development had no significant role in short-term growth. One of the reasons for this may be in-efficient and underdeveloped capital market. However, trade channel made a considerable contribution to growth in the short-run.

Africa, Nigeria and Uganda experience significant role of financial development in the short-run. Let us take up Nigeria. For Nigeria financial depth may contribute more to growth than stock market development and trade openness. Therefore financial depth may be focused on. Degree of integration and trade openness supported the cause of growth.

For Uganda stock market development has a little role to play while trade openness may play a greater role than that of other parameters. The negative co-efficient of financial depth is due to less developed financial sector. Trade channel serve to promote growth. Intercept term reflects the considerable role of other factors in short-term growth.

Let us discuss Europe. Our parameters of financial development, i.e. stock market development and financial depth play significant role in achieving long-term growth. Trade openness also supports this. In short-run financial depth and stock market development also made considerable contribution to growth. Let us take up European countries for which financial development proved fruitful.

Austria may increase its growth through more trade linkages. The results show that only trade channel contributed to growth in the short run for Austria. Negative co-efficients of financial depth, stock market development and degree of financial integration were not found significant.

Cyprus observed major contribution from trade channel. However, financial depth may slightly increase growth. The negative co-efficient of stock market development is due to lower capitalization to GDP ratio. By increasing trade linkages and financial depth, Denmark may increase its growth in the short-run. Degree of financial integration also supports growth. Intercept term shows the contribution of other factors in growth.

For Finland Trade openness may contribute to short-term growth. Parameters of stock market development and financial depth did not contribute to short-term growth.

Hungry may increase its growth in the short-run by achieving higher level of financial depth. The role of stock market development is lower than that of financial depth. The intercept term shows the contribution of other factors in growth. Hence both indicators of financial

development are expected to contribute to short-term growth. Let us look at short term dynamics of Ireland. For short-term growth of Ireland, stock market development may play greater role than that of financial depth and trade openness. Degree of integration supported the cause of growth. A very robust intercept term shows the contribution of some other strong factors to short term growth.

Let us analyze the short-term dynamics of Switzerland. For Switzerland financial depth may play a greater role in economic growth than stock market development. Trade channel also contributed considerably in the short run and degree of integration supported growth too.

Our third panel consists of ASEAN Region. For ASEAN region financial depth contributed to growth in the long run along with trade openness. Let us look at ASEAN countries one by one to see how is short term growth effected by financial development and trade openness? Let us first look at Indonesia.

Indonesia may enhance its growth by achieving higher level of stock market development. The role of financial depth was lesser than that of financial depth. However, financial depth may contribute to growth but to a little extent. Degree of financial integration also supported growth.

For Malaysia's short-term growth, financial depth may play a little role followed by trade openness. However, the role of stock market development was very small. Trade channel augmented growth and served the cause of financial integration.

Singapore has a developed financial system. However, the role of stock market development was not visible in the short run. However, financial depth and trade openness contributed to growth in the short-run. The role of trade openness was far bigger than that of financial depth in promoting growth in the short run.

Thailand is a developing economy of the region. The following model sheds light on the short-run growth dynamics of the country. There was no significant role of stock market development and financial depth in fostering growth. The robust intercept term shows the contribution of other factors to the short-term growth of the country. These factors may include some strengths of the economy like natural resources and tourism which may augment growth.

5.6. DISCUSSION ON CROSS-SECTION WISE VOLATILITY

Estimation results show that stock market development has a major role in curbing macroeconomic volatility. The co-efficients of financial depth and monetary union are very small and play a little role in minimizing volatility. Trade openness was not significant in lowering volatility in the long run. In short run financial depth and stock market development contributed to lower volatility. However, the role of stock market development was greater than that of financial depth. Degree of financial market integration also served to lower volatility.

Let us see the cross-section wise short-term dynamics of volatility. Let us first take up Australia a pacific country. For Australia financial depth and stock market development have little role to reduce volatility. Trade opennesss had no significant role in this regard. The mean value of financial depth for Australia is less than 60% of GDP which is considered a rather low level of financial development. Owing to this the country was not able to reduce its macroeconomic volatility. Moreover, average level of stock market development i.e. the ratio of market capitalization to GDP is less than 90%.

Austria is a rich country and member of EU. Despite common currency, it experienced very little role of financial depth and trade openness. Trade openness and financial depth would serve to reduce volatility but to a little extent. The co-efficients of financial depth and trade

openness are very small. If we look at summary statistics of Austria, we come to know that financial depth was less than 80% of GDP while stock market development was pathetic low i.e. close to 20% of GDP.

Financial depth has some role to play in minimizing volatility for Finland. The role of trade openness is negligible. Summary statistics shows that the average level of tradeopennes and financial depth was very low.

For France Trade openness and financial depth has very little role to play in reducing volatility in the short-run period. In case of France, trade openness and stock market development was low while financial depth was satisfactory. That is why stock market development was not able to contribute to lower volatility.

Let us look at Greece which is rather less financially developed than other economies of EU. The short-run dynamics of Greece are as under. For Greece Trade openness and monetary union may contribute to reduce macroeconomic volatility. Monetary union also served to reduce volatility. It is worthy of mention that level of financial depth and stock market development were quite low. However, average trade openness was satisfactory. That is why financial depth and stock market development had no role in lowering volatility. However, trade openness contributed somewhat in minimizing volatility.

The model shows that for Ireland Stock market development may play a little role to curb volatility. Average level of stock market development was very low. However, financial depth was close to 70% of GDP. Ireland had high level of trade openness but it did not contribute to lower volatility.

Let us look at Luxemburg a high income small country of EU.Despite having high levels of financial development and trade openness; the country did not witness contribution of stock

market development and financial depth in minimizing macroeconomic volatility. However, Trade openness may play little role in curbing volatility.

Let us look at the Scandinavian economy, Norway. Short run dynamics of volatility are as under.

Stock market development may help to a little extent to reduce volatility. Table 5.2.30 in Appendix shows that Norway has very low level of financial development and trade openness. Despite this it managed an average growth rate of about 6% and average volatility of 0.002.

The results show that for Portugal both measures of financial development i.e. financial depth and stock market development may serve to reduce volatility in the short-run. However, stock market development has a major role to play. Portugal had low average stock market development and trade openness. However, financial depth was satisfactory. Stock market development contributed more than financial depth to lower volatility.

The model shows for Spain trade openness and financial depth are helpful in reducing volatility in the short-run. However, financial depth has little contribution in minimizing volatility. Spain has low level of stock market development. Let us now look at Asian and African countries how did they experience the role of financial development (stock market development and financial depth) in lowering volatility?

By increasing financial depth, volatility for Bahrain in the short-run may be reduced. Bahrain has low level of financial depth and satisfactory level of stock market development. Despite this stock market development had no role in lowering volatility. However, financial depth contributed to lower volatility. Stock market development has a very little impact in reducing volatility. This may be due to lower level of stock market development and financial

depth. For Kuwait although both stock market development and financial depth serve to lower volatility, yet the impact of financial depth is higher than that of stock market development. Kuwait had low level of financial depth and satisfactory level of stock market development. Therefore financial depth may be focused on to minimize short term volatility.

As far as Turkey is concerned results show that financial depth and stock market development may help reduce volatility in the short-run. Thus Turkey should focus on enhancing financial development. Turkey experienced low level of financial depth and stock market development. That is why the contribution of these parameters is small in lowering volatility.

For UAE trade channel played a little role in curbing volatility. Summary Statistics shows that the country has very low level of trade openness, stock market development and financial depth. That is why these variables failed to reduce volatility. Let us look at some African countries. Ghana may reduce its macroeconomic volatility in the short-run by increasing stock market development and trade openness.

The role of financial depth was small in reducing volatility. Nigeria may reduce volatility with more financial depth and trade openness but to a little extent since the co-efficients of trade openness and financial depth are very small. In the short-run, financial depth, stock market development and trade openness may help reduce volatility. Thus Uganda should focus on achieving higher level of financial development and trade openness.

Zimbabwe experienced a modest role of financial depth and trade openness and very small role of stock market development in curbing volatility. Zimbabwe should focus more on financial depth than stock market development in the short-run.

Let us look at short term dynamics of south Asian countries. Bangladesh observed that Stock market development had a very little impact in reducing volatility. One of the reasons may be very low level of financial development and trade openness.

For India financial depth may contribute little to reduce macroeconomic volatility. India has very low level of stock market development and financial depth. Therefore these parameters may not contribute to lower volatility.

For Pakistan financial depth may play greater role in reducing volatility than stock market development in the short-run. Pakistan should enhance financial depth to curb volatility. Pakistan has very low level of financial development but rather satisfactory level of trade openness.

For Srilanka financial depth and stock market development contribute little to minimize volatility. However, role of financial depth is more visible than that of stock market development. Therefore financial depth may be focused on. Let us look at ASEAN nations to see the short-term dynamics of volatility.

For Indonesia financial depth would have very small contribution in reducing volatility. Indonesia has high level of trade openness and low level of financial development.
Japan experienced that Stock market development had a little role in curbing volatility.

Financial depth would be proved fruitful in reducing volatility for Malaysia in the short-run. Although stock market development helps in minimizing volatility, its contribution is very small. Therefore country may focus on financial depth.

For Philippines financial depth and stock market development would help curb volatility in the short-run. Thus both variables should be focused on.

For Singapore stock market development and trade openness serve to reduce volatility. Role of trade openness is more than that of stock market development in curbing volatility in the short-run. Therefore trade channel and stock market development may be the focus of economic managers of Singapore.

In case of Thailand, financial depth and trade openness may play role in curbing volatility. However, co-efficient of trade openness was more robust than that of financial depth. Average trade openness level for Thailand is high while financial depth and stock market development were low.

For UK, financial depth and stock market development played a little role in curbing volatility. However, stock market development played a very negligible role. Therefore more focus on financial depth may help UK to reduce short term volatility.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

We have estimated and tested long-term and short-term coefficients and intercept parameters of our proposed equations of growth and macroeconomic volatility using Pooled Mean Group Estimation technique. The purpose was to test the significance of parameters of our independent variables i.e. financial depth, stock market development, along with trade openness, monetary union and degree of financial integration.

Our equation for ASEAN, Europe, Asia Pacific & MENA regions describes long-run phenomenon of financial openness and states that in the long run stock market development positively influenced growth of all economies. Monetary union positively contributed to growth. Financial depth was also found significant. The development of stock market and credit market may spur growth for all economies in the long run. The results show that in the long run, investment to output ratio and human capital may play greater role along with stock market development and trade openness. It may be inferred that in the long-run growth may be enhanced by concentrating on stock market development, financial depth and investment-output ratio.

In the short-run, stock market development and trade openness was found significant. That is why these variables may contribute towards growth. However, contribution of stock market development was very low as compared to trade openness. This leads us to the conclusion that Stock market development is a factor which contributed to growth both in the long-run and short-run. Thus it implies that stock market development has shown a persistent behavior in promoting growth. These results hold good for countries pertaining to different regions.

We have also estimated parameters of growth for three panels i.e. Europe, ASEAN, and Asia Pacific & MENA regions. Our estimation show that for European countries, financial depth and stock market development contributed to long-term growth. However, contribution of financial depth outweighs that of stock market development. In the short-run, financial depth contributed more to growth than stock market development. Therefore, the role of financial depth in enhancing growth is more persistent than that of stock market development. It implies that more focus of European economies on financial depth than on stock market development may prove fruitful for economic growth.

For ASEAN region, financial depth can play a role to foster growth in the long-run. In the short-run, no parameter contributed to growth. Financial depth, stock market development and trade openness played a role to support growth in the long-run for Asia Pacific and MENA region. However, in the short-run only financial depth contributed to growth. It implies that financial depth may be enhanced since it has played a persistent role in achieving growth.

Country wise short-run coefficients of variables of growth equation were estimated. It may be concluded that Australia may augment its growth by focusing on financial depth and more integration. Austria may increase its growth through more trade linkages. Bahrain may

increase its growth by having more financial depth and stock market development. However, financial depth would have more robust contribution in growth than stock market development. In case of Bangladesh, financial depth and trade channel may contribute to growth. Major contribution would be made by financial depth. Cyprus observed major contribution from trade openness. However, financial depth may slightly increase growth. By increasing trade linkages and financial depth, Denmark may increase its growth in the short-run. For Egypt financial depth may contribute to growth in the short-run.

For Finland Trade openness may contribute to short-term growth. Hungry may increase its growth in the short-run by achieving higher level of financial depth. The role of stock market development was minor for Hungry. Indonesia may enhance its growth by achieving higher level of stock market development. The role of financial depth was lesser than that of stock market development. For short-term growth of Ireland, stock market development may play a greater role than financial depth and trade openness. For Malaysia's short-term growth, financial depth may play a little role followed by trade openness.

For Nigeria financial depth may contribute more to growth than stock market development and trade openness can do. In case of Oman financial depth may considerably contribute to growth. For Pakistan short-term growth may be increased by having more financial depth. The contribution of financial depth is more than that of stock market development and trade openness in growth.

In case of Saudi Arabia by increasing financial depth, growth may be increased. Financial depth and trade openness may contribute to growth in the short-run for Singapore. Srilanka may increase growth in the short-run by focusing on financial depth and trade openness. For Switzerland financial depth may play a greater role in economic growth than stock market

development. For Uganda stock market development had a little role to play while trade openness may play a greater role than that of other variables.

We have estimated long-run coefficients of equation of macroeconomic volatility. It is concluded that financial depth and stock market development may contribute to curb volatility in the long-run. However, the role of stock market development was considerably higher than that of financial depth which assumed negligible role. Monetary Union provided very little support in this regard. In the short-run financial depth, stock market development and degree of financial integration may contribute to curb volatility. Therefore, the role of stock market development is more consistent and visible than that of financial depth.

Let us discuss country wise parameters of independent variables i.e. financial depth, stock market development, trade openness, and other macroeconomic variables. For Australia financial depth and stock market development had little role to play in reducing volatility. Trade openness and financial depth would serve to reduce volatility but to a very small extent. By increasing financial depth, volatility for Bahrain in the short-run may be reduced. Stock market development had a very little impact in reducing volatility for Bangladesh. Stock market development has a very little impact in reducing volatility for Egypt. Financial depth had some role in minimizing volatility for Finland.Tradeopenness and financial depth has very little role to play in reducing volatility in the short-run period for France.

Ghana may reduce its macroeconomic volatility in the short-run by increasing stock market development and trade openness. For Greece Trade openness and monetary union may contribute to reduce macroeconomic volatility.

India experienced role of financial depth in reducing macroeconomic volatility. For Indonesia financial depth would have very small contribution in reducing volatility. Stock market development may play a little role to curb volatility for Ireland in the short-run. It was observed that for Japan stock market development may play a little role to curb volatility. Trade openness may play little role in curbing volatility for Luxemburg.

Malaysia experienced that financial depth would be proved fruitful in reducing volatility in the short-run. In case of Nigeria the role of financial depth may be small in reducing volatility. Nigeria may reduce volatility with more financial depth and trade openness. It was observed that for Norway stock market development may help to a little extent to reduce volatility. For Pakistan financial depth may play greater role in reducing volatility than stock market development in the short-run. Pakistan should enhance financial depth to curb short term volatility.

For Philippines financial depth and stock market development would help curb volatility in the short-run. Thus both parameters should be focused on. For Portugal both parameters, i.e. financial depth and stock market development would serve to reduce volatility in the short-run. However, stock market development had a major role to play. In case of Singapore stock market development and trade openness serve to reduce volatility. Role of trade openness was more active than that of stock market development in curbing volatility in the short-run.

In case of Spain trade openness and financial depth were helpful in reducing volatility in the short-run. However, financial depth had little contribution in minimizing volatility. For Srilanka financial depth and stock market development contribute little in minimizing volatility. However, role of financial depth was more visible than that of stock market development. For Thailand, financial depth and trade openness played role in curbing volatility. However, co-

efficient of trade openness was robust than that of financial depth. It was observed for Turkey that financial depth and stock market development may help reduce volatility in the short-run. Thus Turkey should focus on enhancing financial development.

It was observed that in the short-run, financial depth, stock market development and trade openness may help reduce volatility for Uganda. Thus Uganda should focus on achieving higher level of financial development and trade openness. For UAE trade channel played a little role in curbing volatility. For UK, financial depth and stock market development played a little role in curbing volatility. Zimbabwe experienced a modest role of financial depth and trade openness and very small role of stock market development in curbing volatility. Zimbabwe should focus more on financial depth than stock market development in the short-run.

Our estimation results give us a wholistic picture of role of financial depth and stock market development in case of different economies of the world. These economies are heterogeneous in their level of financial development (capital market development and financial depth). While performing Pooled Mean Group estimation method, countries from different regions of the world such as Asia Pacific, Europe, and ASEAN were included. Two equations of growth and volatility based on benefits and costs of financial integration (growth and volatility) were estimated and tested in the context of financial openness one by one. These equations were based on economic theory and literature on financial openness. The first equation explains up to what extent our main variable financial development (further decomposed in to two components i.e. STCKMKTDEV for stock market development and FINDEPTH for financial depth) may influence the economic growth in the context of financial openness.

Besides two proxies for financial development (STCKMKTDEV &*FINDEPTH*) other important variables like TRADEOPENNESS, human capital, inflation, investment to output

ratio and labor growth rate were also included. In case of Growth which is a major cited benefit of financial openness, lagged values of growth and lagged values of TRADEOPEN, STCKMKTDEV and FINDEPTH were also included. The equation was tested with NULL hypothesis of no significant coefficients for proxies of financial development (STCKMKTDEV& FINDEPTH). Results of PMG Estimation speak for significance of financial depth, capital market development and investment to output ratio for pooled data.

From above it may be inferred since financial integration is a long run phenomenon, its benefits may not be reaped in the short run. Both financially developed and less financially developed countries may have the fruits of financial integration. The role of variables like trade openness, and financial development (financial depth and stock market development) is significant in the growth of economies. However, in the long run, stock market development and monetary union may contribute towards growth.

It may be inferred that in the short run and long-run the variables of our proposed Model may help reduce macroeconomic volatility. It is worth mentioning that in case of all countries, all these parameters are not jointly significant. However, individually trade openness, stock market development, monetary union and financial depth may influence the macroeconomic volatility. The behavior of each independent variable changes from country to country.

In case of European economies, it was observed that financial depth and stock market development contributed to reduce macroeconomic volatility in the long-run. African countries witnessed a significant role of trade openness and financial development. Asian countries also experienced a significant role of trade openness and financial development in reducing macroeconomic volatility. It may be concluded that in short run trade openness and financial

development for all countries and human capital and investment to output ratio for only few EU countries may significantly reduce macroeconomic volatility.

6.2. RECOMMENDATIONS

The objective of our research was to estimate and test the significance of the variables like stock market development, financial depth and monetary union along with other macroeconomic variables. Therefore, we tested the significance of coefficients of growth and macroeconomic volatility equations. Our results show that the variables aforementioned serve to enhance the growth in the long run as well as in the short run. Simultaneously these parameters showed their significance in reducing macroeconomic volatility in the long run as well as in the short run. However financial development played a rather small role in lowering volatility.

On the basis of results of our long run growth equation, it is recommended that countries should focus more on capital market development in the long run to enhance growth. Capital market development is also supported by credit market development or financial depth. Therefore credit market development (financial depth) would augment capital market development.

On the basis of results of our macroeconomic volatility equation, it is recommended that countries should strive for higher level of financial depth; and participate in monetary union in order to manage their macroeconomic volatility.

Therefore, it is recommended that countries should manage to have their level of financial depth (the ratio of domestic credit to private sector to gdp) above the threshold level of 70% of GDP. And for capital market development (stock market development) to be fruitful i.e.

market capitalization to GDP ratio should be above 80% of GDP. It is possible that both the objectives of enhancing growth and lowering macroeconomic volatility can be achieved by maintaining the threshold level of financial depth and stock market development.

It is also recommended that a financial supervisory mechanism be established for countries having market integration. This mechanism may be an institutional arrangement which would keep a check on growth and volatility of the economies forming blocks; and therefore serve the cause of purposeful market integration.

6.3. FUTURE RESEARCH IMPLICATIONS

The findings of this study have considerable implications for future research in the area of financial market openness. It was observed that some European countries like Finland, Germany, Portugal and Spain did not experience positive impact of monetary union (common currency) on growth. Theoretically monetary union should serve to achieve the goal of fruitful integration in the form of enhanced growth and low volatility. A question arises why (despite economic integration and monetary union) were these countries unable to witness increase in growth? What factors are responsible for this? An investigation to this question would pave the way for more effective monetary union.

Our panel of countries consisted of financially heterogeneous economies of different regions of the world. In this study we focused on impact of financial development and other variables on growth and macroeconomic volatility. Future research may be focused on other benefits of financial integration like risk sharing and consumption smoothing. Moreover this study was conducted at macro level where significance of parameters of variables i.e. stock

market development, financial depth, monetary union and degree of financial integration was tested for countries of different regions. However, the impact of these variables may be captured for individual investors at micro level. That is the perspective of portfolio investor may be taken in the context of international financial market integration.

During analysis it was also observed in case of some economies the two aspects of financial development i.e. Stock market development (STCKMKTDEV) and financial depth (FINDEPTH) were moving in opposite direction. Finance theory suggests that capital market development and financial depth (credit market development) support each other and are therefore complementary for each other. The question arises which factor is responsible for this deviant behavior of these two variables? Why are capital market development (stock market development) and credit market development (financial depth) not positively impacting each other? An investigation to this query may add to the literature on financial market integration. This may be a notable contribution in the said area.

And last but not least, future models of financial integration may focus on optimization of growth, risk sharing and diversification benefits. It is expected that our work would open up new avenues of future research in the area of financial integration and enrich the literature with notable contribution in international finance.

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APPENDIX: COUNTRY WISE SUMMARY STATISTICS

Table 5.2.1

Summary Stats Australia

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.007051	1.756189	-3.528456	5.103803
TRADE OPENNESS	53	33.0372	5.91377	24.81927	44.62354
FINDEPTH	53	55.97854	36.24112	17.62243	125.9688
STCKMKTDEV	25	88.69967	33.70961	35.00393	152.0667

Table 5.2.2

Summary Stats Austria

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.552257	1.946164	-4.147831	5.909496
TRADEOPENNESS	53	72.17194	19.9705	44.90724	112.7782
FINDEPTH	52	77.3928	28.77909	32.73262	125.9977
STCKMKTDEV	25	20.20222	14.05462	4.470707	60.98181
TOTVOLATILITY	49	.0002964	.0004138	3.02e-09	.0016974

Table 5.2.3

Summary Statistics-Bahrain

VARIABLE	OBS	MEAN	SD	MIN	MAX
GROWTH	32	.1634525	4.227544	-10.38857	10.13944
TRADEOPENNESS	33	169.5284	31.41669	120.4723	251.1389
FINDEPTH	33	46.03973	10.85437	29.84243	71.43726
STCKMKTDEV	15	88.3746	22.36569	52.91064	129.4651

Table 5.2.4

Summary Statistics Bangladesh

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	1.743012	3.930176	-15.3533	7.841496
TRADE OPENNESS	53	26.47135	10.61463	10.99563	55.29305
FINDEPTH	39	20.62817	13.60589	1.91712	49.41993
STCKMKTDEV	25	5.548478	5.31533	.8689348	21.04095
TOTVOLATILITY	37	.0036328	.0085917	3.54e-07	.0508663

Table 5.2.5

Summary Statistics-Cyprus

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	37	3.634148	4.910206	-4.904131	21.24487
TRADEOPENNESS	53	72.92718	13.9099	55.79902	106.297
FINDEPTH	38	143.4087	80.42738	57.377	305.0869
STCKMKTDEV	22	37.86005	29.20909	8.765624	134.964
TOT VOLATILITY	49	.0020004	.0031259	1.72e-06	.0166453

Table 5.2.6

Summary Statistics-Denmark

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	1.950078	2.410247	-6.169727	8.400119
TRADEOPENNESS	53	49.61211	12.86363	30.19084	82.17667
FINDEPTH	53	77.56739	62.17399	30.76999	223.8732
STCKMKTDEV	25	51.17816	18.75856	21.70505	89.18777
TOTVOLATILITY	49	2.03e-07	7.37e-07	1.31e-19	4.84e-06

Table 5.2.7

Summary Statistics Egypt

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	47	2.941848	2.856581	-1.939681	12.25342
FINDEPTH	48	29.31493	13.95365	10.79263	54.93114
TRADEOPENNESS	53	58.7242	14.47823	38.31326	89.91706
STCKMKTDEV	25	31.95455	27.58176	4.080647	106.753
TOTVOLATILITY	49	.0132861	.0189656	.0001049	.0773912

Table 5.2.8

Summary Statistics Finland

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	51	2.687545	3.168364	-8.974979	9.656904
TRADEOPENNESS	52	42.02921	9.91995	24.94987	56.75398
FINDEPTH	52	58.58311	18.3556	36.80656	97.03514
STCKMKTDEV	24	82.05715	68.63428	11.07367	268.1101
TOTVOLATILITY	49	.0009517	.0012572	1.40e-06	.0055441

Table 5.2.9

Summary Statistics France

VARIABLE	OBS	MEAN STD. DEV.	MIN	MAX
GROWTH	52	2.199013 1.971519	-3.643751	6.276769
TRADEOPENNESS	53	53.54478 27.73086	6.320343	116.0484
FINDEPTH	52	82.37893 20.78526	28.31275	115.9635
STCKMKTDEV	25	61.44643 28.16138	24.47165	109.0701
TOTVOLATILITY	49	.0004236 .0006088	5.73e-07	.0028764

Table 5.2.10

Summary Statistics Germany

VARIABLE	OBS	MEAN STD. DEV.	MIN	MAX
GROWTH	41	1.964932 1.956584	-4.904846	5.400212
TRADEOPENNESS	52	44.89205 11.87418	24.51897	65.33119
FINDEPTH	42	91.50338 18.80953	61.35246	119.4464
STCKMKTDEV	24	38.03225 15.8448	16.85744	67.33685
TOTVOLATILITY	49	.0004371 .000684	2.82e-08	.0036063

Table 5.2.11

Summary Statistics Germany

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	51	.7960286	4.462033	-14.4549	12.42247
TRADEOPENNESS	52	237.1553	84.59999	141.0879	446.7544
FINDEPTH	52	7.66205	4.288877	1.542269	15.882
STCKMKTDEV	21	14.01996	8.67759	1.150969	34.33479
TOTVOLATILITY	47	.0152689	.0361653	1.54e-06	.2004401

Table 5.2.12

Summary Statistics Greece

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.508735	4.301662	-7.042871	10.27172
TRADEOPENNESS	52	91.26146	37.46596	43.53627	180.5012
FINDEPTH	53	41.59755	29.34087	12.13306	121.8769
STCKMKTDEV	25	39.34356	35.71375	5.885588	153.3273
TOTVOLATILITY	49	.0017828	.0022902	3.29e-06	.0096335

Table 5.2.13

Summary Statistics Hong Kong

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	47	4.289851	4.20284	-6.66499	14.71397
TRADEOPENNESS	53	20.30092	13.65268	7.529721	55.36484
FINDEPTH	23	153.7154	19.41369	129.521	202.2924
STCKMKTDEV	25	312.6633	136.778	108.4127	606.001
TOTVOLATILITY	49	.0002148	.0004001	3.62e-10	.0021993

Table 5.2.14

Summary Statistics Hungary

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	3.465491	6.454721	-11.88705	42.01608
TRADEOPENNESS	53	45.96683	15.48642	10.92291	96.1862
FINDEPTH	31	44.46788	14.91734	21.69905	69.79911
STCKMKTDEV	22	19.21867	11.56683	1.478576	37.26416

Table 5.2.15

Summary Statistics India

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	3.134239	3.287726	-7.415452	9.126393
TRADEOPENNESS	43	41.80858	13.45616	13.77244	76.7743
FINDEPTH	53	23.38726	12.1588	7.707959	51.02004
STCKMKTDEV	25	45.33445	32.10527	7.819983	146.8556
TOTVOLATILITY	49	.0026391	.0047362	1.56e-08	.0243259

Table 5.2.16

Summary Statistics Indonesia

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	3.592087	3.679844	-14.38515	9.182194
TRADEOPENNESS	53	115.9469	37.74535	64.80014	191.3687
FINDEPTH	33	30.90791	14.31917	8.994225	60.84894
STCKMKTDEV	25	25.3733	15.3518	.2849496	50.8168
TOTVOLATILITY	49	.0051689	.0071652	4.52e-07	.0335351

Table 5.2.17

Summary Statistics Iran

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	44	2.086375	7.140042	-16.40633	14.17572
TRADEOPENNESS	53	41.45204	9.757695	25.36059	59.30285
DCPGDP	47	22.42981	5.433534	12.50328	37.27845
STCKMKTDEV	20	15.70258	7.419007	2.163482	28.7913
TOTVOLATILITY	49	.027956	.0610924	5.18e-06	.3644193

Table 5.2.18

Summary Statistics Ireland

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	12	.8950362	3.221795	-6.161559	3.87243
TRADEOPENNESS	37	122.1385	15.06864	81.83949	149.4534
FINDEPTH	53	73.13235	59.89441	25.63775	232.0975
STCKMKTDEV	18	53.96545	17.86757	18.71012	84.12732
TOTVOLATILITY	49	8.32e-06	.0000194	1.08e-11	.0000928

Table 5.2.19

Summary Statistics Italy

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.263126	2.638615	-6.060441	7.486419
FINDEPTH	50	69.44358	20.34273	48.71046	124.4156
STCKMKTDEV	25	30.56728	17.46526	10.14185	69.59755
TOTVOLATILITY	49	.0013065	.0021785	2.50e-07	.0079259

Table 5.2.20

Summary Statistics Japan

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	3.293123	3.716417	-5.418784	12.50716
TRADEOPENNESS	50	95.3485	10.92442	81.2252	142.6129
STCKMKTDEV	25	79.39878	24.17917	51.26171	145.5063
FINDEPTH	53	151.0004	47.5895	56.31121	227.7525
TOTVOLATILITY	49	.0021232	.0030498	5.87e-07	.0148146

Table 5.2.21

Summary Statistics Jordan

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	37	2.500822	6.41681	-16.51074	19.91872
DCPGDP	48	53.80236	23.26918	14.77218	91.76887
TRADEOPENNESS	53	207.4244	56.45861	147.1201	333.5322
STCKMKTDEV	25	103.0485	64.19703	35.52465	299.1272
TOTVOLATILITY	49	.0055825	.0073265	4.20e-07	.0339365

Table 5.2.22

Summary Statistics Korea

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	40	-2.633174	9.003062	-24.53406	22.72784
TRADEOPENNESS	53	132.321	49.95899	69.25857	220.4074
TOTVOLATILITY	49	.0044118	.0099596	1.81e-06	.0635894

Table 5.2.23

Summary Statistics Kuwait

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.581445	3.566028	-7.586475	9.491574
TRADEOPENNESS	53	54.54194	13.22985	35.05362	88.34727
FINDEPTH	50	42.75862	26.93628	6.370597	93.54561
STCKMKTDEV	22	81.69186	36.21566	40.84091	163.9146
TOTVOLATILITY	49	.0393237	.1216731	8.28e-07	.7860553

Table 5.2.24

Summary Statistics Luxemburg

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	3.832501	3.322075	-9.635422	9.033399
TRADEOPENNESS	53	109.8567	20.17217	81.35971	167.6545
DCPGDP	33	113.1096	39.12151	43.10552	196.8593
STCKMKTDEV	25	161.7283	83.92673	77.3483	479.8116
DFI	29	.0134962	.0096099	.0015047	.0341452
TOTVOLATILITY	41	.0009502	.0024356	2.84e-06	.0136533

Table 5.2.25

Summary Statistics Malaysia

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	47	2.509715	4.159301	-8.025937	10.53732
FINDEPTH	33	113.1096	39.12151	43.10552	196.8593
STCKMKTDEV	25	156.3796	65.73261	66.05828	328.8763
TOTVOLAILITY	49	.0017504	.0026322	2.73e-07	.0118821

Table 5.2.26

Summary Statistics Morocco

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.193988	2.218797	-4.16172	7.161982
TRADEOPENNESS	53	46.38882	19.01518	19.6206	88.47864
FINDEPTH	49	29.80472	18.44677	11.99922	73.34315
STCKMKTDEV	25	35.92464	27.51735	2.009155	100.3566
TOTVOLATILITY	49	.0031356	.0060463	1.12e-06	.0310887

Table 5.2.27

Summary Statistics Netherland

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	35	1.240613	2.148036	-5.772839	5.159514
TRADEOPENNESS	53	73.12684	3.806593	66.71441	83.22385
FINDEPTH	52	96.09497	50.24469	32.24113	214.1527
STCKMKTDEV	25	89.0373	36.79258	40.15296	168.963
TOTVOLATILITY	49	.000127	.0001968	1.06e-08	.0008959

Table 5.2.28

Summary Statistics New Zealand

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	1.589387	8.383343	-17.56179	30.34408
FINDEPTH	51	56.92957	46.61341	12.70602	147.5272
TRADEOPENNESS	44	91.20991	13.08853	56.18557	123.0224
STCKMKTDEV	25	40.54688	10.19364	18.52345	56.37624
TOTVOLATILITY	49	.0030401	.0091061	3.99e-12	.0631057

Table 5.2.29

Summary Statistics Nigeria

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.612356	1.930293	-2.867605	5.595716
TRADEOPENNESS	46	32.46433	4.333257	19.93229	38.9095
FINDEPTH	53	11.94611	6.579625	3.696699	38.48581
STCKMKTDEV	25	12.89977	9.828598	4.1251	51.87517
TOTVOLATILITY	49	.018967	.0317084	3.78e-07	.1708329

Table 5.2.30

Summary Statistics Norway

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	46	5.926132	15.41383	-17.50457	76.67519
TRADEOPENNESS	53	61.22101	23.79267	23.4225	108.2503
FINDEPTH	47	47.78697	17.31877	30.81939	86.19219
STCKMKTDEV	25	40.58915	19.54826	13.87384	90.83574
TOTVOLATILITY	49	.0023776	.0050655	5.87e-07	.0283066

Table 5.2.31

Summary Statistics Oman

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.476594	2.295316	-2.233717	8.365299
TRADEOPENNESS	53	56.37795	11.51862	33.47752	77.99065
FINDEPTH	41	26.35601	11.27401	4.703835	47.32569
STCKMKTDEV	21	26.76302	13.27448	8.5125	55.03531
TOTVOLATILITY	45	.0525522	.2055745	.0000128	1.351193

Table 5.2.32

Summary Statistics Pakistan

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	1.533794	2.981688	-9.811569	5.848277
TRADEOPENNESS	45	78.23126	13.11262	56.47418	124.8431
FINDEPTH	53	23.7003	3.900457	11.14825	29.78608
STCKMKTDEV	25	18.33819	10.38852	6.123817	46.10815
TOT VOLATILITY	49	.0049498	.0071742	.0000137	.0342206

Table 5.2.33

Summary Statistics Philippines

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	3.140028	3.872841	-7.914608	13.61509
TRADEOPENNESS	53	331.8317	53.72635	229.1831	444.1004
FINDEPTH	53	26.96466	8.955529	11.97408	56.45748
STCKMKTDEV	25	51.13262	26.0278	11.2972	105.5803
TOTVOLATILITY	49	.0037197	.0057227	2.17e-06	.0261179

Table 5.2.34

Summary Statistics Portugal

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	44	1.682541	7.542212	-16.57175	21.21944
TRADEOPENNESS	53	38.65762	14.3598	15.26805	64.56246
FINDEPTH	53	83.99719	45.83471	39.47784	192.098
STCKMKTDEV	25	30.70525	14.98915	8.675846	57.07124
TOTVOLATILITY	49	.0016624	.0023777	1.59e-06	.0116349

Table 5.2.35

Summary Statistics Saudi Arabia

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	5.268018	4.410295	-6.158751	12.76629
TRADEOPENNESS	53	65.19948	12.12839	43.00983	88.63646
FINDEPTH	45	19.17523	11.88335	2.776393	45.6298
STCKMKTDEV	22	59.58606	41.00952	28.71519	196.7072
TOTVOLAILITY	49	.0134341	.0241946	8.57e-06	.1441738

Table 5.2.36

Summary Statistics Singapore

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
TRADEOPENNESS	53	65.0298	17.31854	42.09835	100.3062
GROWTH	52	2.780462	2.943985	-4.57156	10.80449
FINDEPTH	50	75.98312	23.35675	33.69186	116.2041
STCKMKTDEV	25	153.7673	52.28114	88.17512	248.5192
TOTVOLATILITY	49	.0000308	.0001219	3.45e-13	.0008013

Table 5.2.37

Summary Statistics Spain

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	3.388424	2.123782	-1.734624	9.24187
FINDEPTH	53	89.25683	48.39671	31.4471	215.0615
TRADEOPENNESS	43	72.83323	13.17939	54.01913	98.80865
STCKMKTDEV	25	61.30429	29.95183	16.17588	124.8829
TOTVOLATILITY	49	-.0022379	.054879	-.1885924	.0875615

Table 5.2.38

Summary Statistics Srilanka

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
TRADEOPENNESS	53	74.56126	40.55088	32.4637	150.3261
GROWTH	52	2.121776	2.278734	-5.833381	6.026349
FINDEPTH	53	19.45099	8.553672	7.109764	33.97362
STCKMKTDEV	25	17.42997	8.899604	6.111115	40.19538
TOTVOLATILITY	49	.0039894	.0065399	1.93e-07	.0284314

Table 5.2.39

Summary Stats Sweden

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	32	.928579	1.707699	-3.154492	3.490643
TRADEOPENNESS	53	29.8098	16.45346	5.725123	57.995
FINDEPTH	53	87.09064	26.93119	37.2944	138.9489
STCKMKTDEV	25	88.73097	34.5155	29.06422	144.2265
TOTVOLATILITY	49	.0004074	.0008098	2.83e-07	.0049641

Table 5.2.40

Summary Statistics Switzerland

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	47	4.504723	3.845542	-11.53281	11.30157
TRADEOPENNESS	52	37.27312	10.79388	16.95112	58.90623
FINDEPTH	53	129.1861	31.28602	75.56836	176.4275
STCKMKTDEV	25	178.963	76.24032	65.56773	309.4466
TOTVOLATILITY	49	.0004033	.0008812	2.03e-09	.004808

Table 5.2.41

Summary Stats Thailand

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.580273	3.927683	-7.059508	8.694965
TRADEOPENNESS	12	129.3999	26.58137	89.86458	169.621
FINDEPTH	53	69.54069	47.42984	10.12182	165.7191
STCKMKTDEV	25	56.89995	27.54585	14.28635	104.791
TOTVOLATILITY	49	.0025636	.0037789	8.55e-08	.0198

Table 5.2.42

Summary Statistics Turkey

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	30	2.436968	3.050916	-6.471035	7.976703
TRADEOPENNESS	53	51.2512	7.342719	37.65279	65.65188
FINDEPTH	53	20.74487	9.312826	12.68063	57.86344
STCKMKTDEV	25	22.94252	12.50848	1.254777	45.1312
TOTVOLATILITY	49	.0068943	.0106127	4.42e-06	.0465589

Table 5.2.43

Summary Stats Uganda

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	37	-2.743089	7.385086	-19.70795	13.04601
TRADEOPENNESS	53	18.48183	6.19643	9.30502	30.71367
FINDEPTH	53	20.74487	9.312826	12.68063	57.86344
STCKMKTDEV	11	13.6343	17.33258	.6016936	49.87485
TOTVOLATILITY	47	.0602038	.2150944	2.56e-06	1.426052

Table 5.2.44

Summary Stats UAE

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	2.025389	2.173031	-5.810939	7.106397
TRADEOPENNESS	53	39.49546	11.20026	19.92348	65.20809
FINDEPTH	48	7.493629	3.598873	2.645613	18.59831
STCKMKTDEV	15	25.23039	16.15681	5.489226	64.19772
TOTVOLATILITY	32	.0074652	.0120381	1.22e-06	.0552334

Table 5.2.45

Summary Stats United Kingdom

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
TRADEOPENNESS	53	47.53071	6.764653	30.71633	60.12733
GROWTH	52	2.109979	2.063756	-3.650781	6.334321
FINDEPTH	38	33.85434	17.26127	9.762832	84.05428
STCKMKTDEV	25	124.5583	29.13306	68.90232	193.2111
TOTVOLATILITY	49	.0005998	.0008256	1.02e-07	.0040266

Table 5.2.46

Summary Statistics-Zimbabwe

VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
GROWTH	52	-.0344306	6.60779	-17.95155	18.56333
TRADEOPENNESS	38	66.66379	26.65761	35.91685	149.586
FINDEPTH	28	29.04157	18.77891	7.476843	103.6323
STCKMKTDEV	24	74.53767	103.0774	9.301675	487.8241
TOTVOLATILITY	45	.0062562	.0108156	7.01e-06	.049239