THE IMPACT OF INTERNATIONAL FINANCIAL REPORTING STANDARDS (IFRS) ADOPTION ON THE INTEGRATION OF CAPITAL MARKETS

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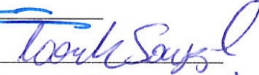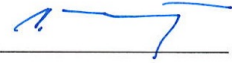
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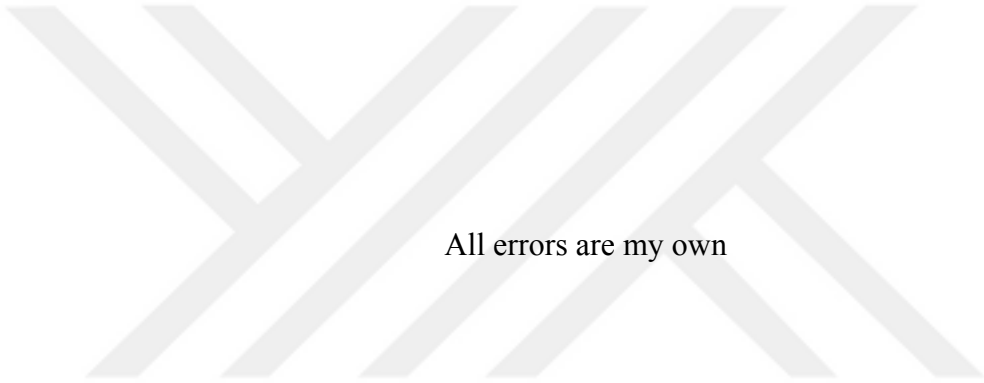
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All errors are my own

ABSTRACT

The impact of International Financial Reporting Standards (IFRS) adoption on the integration of capital markets

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The integrated capital markets play a vital role in economic growth by providing better risk sharing and efficiency to the markets. However, the presence of different barriers such as information asymmetry across borders hinders it. Extant literature shows that adoption of international financial accounting standards (IFRS) helps to remove these barriers and results in increased comparability, transparency and accounting quality of financial statement; which consequently leads to a decreased cost of capital, increased market liquidity and cross-border investment. However, these benefits are not uniform. This dissertation investigated how the adoption of IFRS impact on the integration of worldwide capital markets. I used the staggered adoption dates and price based measures of integration with the control variables for other factors affecting the integration of capital markets. The sample includes all the countries with capital markets benchmark indices and prices data available. Countries are classified into four treatment (adopters) vs control (non-adopters) groups, based on their IFRS adoption date, market capitalization rate to GDP and income levels. Price based measures of capital market integration (CMI) are used to access integration such as correlation coefficient, beta, and sigma convergence. Overall results suggest no significant impact of IFRS adoption on the CMI. The rationale behind is explained by different enforcement mechanism, reporting incentives, learning and transition issues across countries. The findings urge the policymakers to focus on the role of institutional factors in IFRS adoption, and put greater emphasis on the learning and enforcement issues of IFRS.

Keywords: International Financial Reporting Standards (IFRS), Capital markets, Integration, Uniformity of accounting, Beta convergence, Sigma convergence.

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ÖZET

Uluslararası Finansal Raporlama Standartlarının entegrasyon üzerindeki etkisi.

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Entegre sermaye piyasaları, piyasalara daha iyi risk paylaşımı ve verimlilik sağlayarak ekonomik büyümede hayati bir rol oynamaktadır. Ancak sınırlar boyunca, bilgi asimetrisi gibi farklı engellerin varlığı ekonomik büyümeyi engellemektedir. Önceki literatür, uluslararası finansal muhasebe standartlarının (UFRS) kabul edilmesinin, bu engellerin kaldırılmasına yardımcı olduğunu ve finansal tabloların karşılaştırılabilirliğinin, şeffaflığının ve muhasebe kalitesinin artmasını sağladığını göstermektedir; Sonuç olarak, azalan sermaye maliyeti, artan piyasa likiditesi ve sınır ötesi yatırıma yol açmaktadır. Ancak, bu faydalar tek tip (uniform) değildir. Bu tez, UFRS'nin benimsenmesinin dünya çapındaki sermaye piyasalarının entegrasyonu üzerine nasıl etkilediğini araştırmıştır. Sermaye piyasalarının entegrasyonunu etkileyen diğer faktörler berlirlekmek için kontrol değişkenleri ile kademeli (aşamalı) benimseme tarihleri ve fiyat temelli entegrasyon ölçüleri kullanılnuşte. Örnek, sermaye piyasaları gösterge endeksleri ve mevcut fiyat verileri bulunan tüm ülkeleri kapsamaktadır. Ülkeler UFRS, uygul ama tarihi, sermaye piyasası pazar değerinin GSYH'ye oranı, ve gelir düzeylerine göre hem UFRS uygulayanlar dört ayrı grupta toplanıştır hem de uygulamayanlar içinde. Korelasyon katsayısı, beta ve sigma yakınsaması erişim entegrasyonu için sermaye piyasası entegrasyonu'nun (SPE) fiyat bazlı ölçümü olarak kullanıldı. Genel sonuçlar, UFRS'nin benimsenmesinin SPE'ye önemli bir etkisi olmadığını göstermektedir. Arkasındaki gerekçeler, ülkeler genelinde farklı uygulama mekanizmaları, raporlama teşvikleri, öğrenme ve geçiş konularıyla açıklanmaktadır. Bulgular, politika yapıcılarının IFRS'nin benimsenmesinde kurumsal faktörlerin rolüne odaklanmalarını ve IFRS'nin öğrenme ve uygulama konularına daha fazla önem vermelerini gerektirmektedir.

Anahtar Kelimeler: Uluslararası Finansal Raporlama Standartları, Sermaye Piyasaları Entegrasyonu, Beta yakınsaması, Sigma yakınsaması.

DEDICATION

I dedicate this dissertation to my family and friends.

ACKNOWLEDGMENTS

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LIST OF ABBREVIATIONS

IFRS………………International Financial Reporting Standards

IASB………………International Accounting Standard Board

IMF………………... International Monetary Fund

OECD…………….. Organisation for Economic Cooperation and Development

AREAER………….. Exchange Arrangements and Exchange Restrictions

CMI………………. Capital Markets Integration

GAAP…………..... Generally Accepted Accounting Principals

FDI……………… Foreign Direct Investment

CPI……………… Consumer Price Index (Inflation)

GDP…………….. Gross Domestic Product

WGI……………...Worldwide Governance Indicators

DID……………. Difference in Difference

CHAPTER 1

1   INTRODUCTION

Efficient capital markets play important role in the economic growth of the country by improving the allocation of resources and capital (Levine & Zervos, 1998; Osada & Saito, 2010). In the current economic environment, the positive effect of markets further increased in case they are integrated (Bekaert & Harvey, 2000). Integrated capital markets result in an overall reduction in the cost of financial assets, diversified investment opportunities, and stable consumption patterns. Integration of capital market means the comparable and correlated returns on assets issued and traded in different countries (Stulz, 1981). Further, they provide better risk sharing, a decrease in the cost of intermediation, more efficient allocation of capital resources, and better access to the capital and money markets (Baele, Ferrando, Hordahl, Krylova, & Monnet, 2004; Bekaert, Harvey, & Lundblad, 2003; P. B. Henry & Lorentzen, 2003).

Regardless a number of benefits associated with Capital Markets Integration (hereafter CMI), there are actually obstructions which limit the level of integration between capital markets. Bekaert (1995) identifies three types of barriers to CMI: 1) Legal barriers, these are direct restrictions/constraints on foreign investments. For instance, some of the sectors of the market may be closed to foreign ownership, or there are limits on direct ownership of equity; 2) Risks involved in the internal environment of the country, (Examples of such risks include liquidity, political, economic policy, and currency risks (Bekaert et al., 2003); 3) **Information related barriers**, the main contributing factor here is the regulatory and accounting environment. The quality of accounting numbers is important for investors' confidence. Financial information plays a large role in the international investment decisions, and a barrier to financial information (different GAAPs) causes additional cost and risk. With the uniformity of accounting standards i.e. adoption of IFRS, the risk of financial information related barriers will be mitigated (Yan, Dhaliwal, & Periera, 2013).

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Moreover, application of IFRS also plays an indirect role in the reduction of barrier other than information such as improving the regulatory and accounting infrastructure.

Adoption of a single set of accounting standards (IFRS) by 122 countries until 2016 is a great step towards uniformity of accounting across the world. Having same accounting rules determines a number of benefits, the greatest among them being the elimination of restatement of financial statements from market to market. Application of the same financial reporting standards (IFRS) results in more comparable and transparent financial statements across countries (Ball, 2006; Cai & Wong, 2010). Thus, the investors in the capital market have a high-quality comparable and transparent information, without any additional cost. This worldwide IFRS adoption give a unique opportunity to analyse the impact uniformity in accounting rules on the integration of capital markets.

Prior studies documented that IFRS adoption result in increased market liquidity, decreased cost of capital (Daske, Hail, Leuz, & Verdi, 2008; Li, 2010), efficient funds' allocation, and greater flow of foreign investments (Daske et al., 2008; DeFond, Hu, Hung, & Li, 2011; L. A. Gordon, Loeb, & Zhu, 2012). Empirical evidence also reveals that foreign institutional investment and foreign mutual fund holding has been increased with the adoption of IFRS (L. Chen, Ng, & Tsang, 2015; DeFond et al., 2011; Florou & Pope, 2012; Gwen Yu & Wahid, 2014). Foreign individual investment has been increased as well after the IFRS adoption (Brüggemann, Daske, Homburg, & Pope, 2010). However, mere adoption of IFRS does not ensure desired benefits. There may be difference in accounting even after adopting IFRS due to different reporting incentives, different level of enforcement, implementation, language and transition issues (Ball, 2001; Nobes, 2013).

Above evidence indicates that IFRS adoption reduced the barriers to information among capital markets. Information is more uniform and comparable without any additional cost. In free markets (without barriers) capital will flow freely from low-return markets to high return markets, and returns on the capital markets will be more integrated to each other. Due to the importance and associated benefits of the integration of capital markets, an interesting question is: how IFRS adoption impacts the capital markets

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integration? That is main objective of current research; "to analyze the influence of IFRS adoption on the Capital Market Integration".

To separate the incremental impact of IFRS adoption on the reduction of barriers to CMI, I used the staggered IFRS adoption dates and price based measures of integration. Apart from the information related barriers, there are also other barriers to the CMI as identified by Bekaert (1995). Macroeconomic factors affect CMI as identified by prior researchers. Hence, two sets of control variables are used to mitigate the effect of these other factors. One set includes the macroeconomic variables and other includes the country specific risks.

The sample includes all the countries which have a benchmark stock market index with data available, comprising 56 countries form the total of worldwide capital markets; 47 are adopters and 9 are non-adopters. The study covers a long time period 2000-2015; representing three years prior to earliest adoption till now. Further, countries are grouped into treatment (IFRS adopters) group and control (IFRS non-adopters) groups to single out the impact of IFRS adoption on the CMI. Countries adopted IFRS in different years and to different extents (such as IFRS are allowed or permitted only for a specific sector or all listed companies). For the current study, the year in which the IFRS is required for all domestic listed companies is considered as IFRS adoption year for the country. Then on the basis of IFRS adoption years, countries are classified into four classes. In each class, sub-groups i.e. treatment group and control group are made for comparison. For each treatment (IFRS adopters) group a control (IFRS non-adopters) group is selected by matching the income level and market development of the country.

I used the Price-based measures of CMI in which the returns (cash flows) of comparable assets (same risk level), traded in different international markets are calculated and compared. These have an advantage over others because of the reliability and easy availability of stock prices data, and these measures have a clear-cut interpretation (Adam, Jappelli, Menichini, Padula, & Pagano, 2002). Beta and Sigma convergence approaches of price-based measures are used. Beta convergence measures the speed with which a series converge to benchmark, while sigma convergence measures the extent of convergences. These methodologies are free from the direction of causality and allow to

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measure an overall integration for the relatively short time period and heterogeneous sample, as is the case in the current study.

Beta and sigma convergence are estimated for each category and compared to control group. The results show that IFRS adoption has no significant impact on the integration of capital markets. These findings are contradictory to F. Cai and Wong (2010), who found IFRS adoption increased the integration of capital markets of G4 countries and Yan et al. (2013) who used the firm level data of 20 mandatory IFRS adopters' countries and found a positive impact of adoption on integration. This positive impact on the CMI is not uniform as Alnodel (2014) contradictory evidence. It is conjectured that even though IFRS are adopted still there is the difference between the accounting mechanisms around the world (Nobes, 2013), or the positive effects of IFRS on the capital markets and cross-border investments are not strong enough to remove the information barriers. Moreover, the effects of IFRS are not uniform across the countries because of different enforcement mechanism, reporting incentives, and learning as well as translation issues.

This is a country level study in contrast to Yan et al. (2013) who made a firm-level study on the impact of IFRS adoption and integration of capital market. The firm-level studies are conditional on countries' decisions to allow or mandate IFRS (Ramanna & Sletten, 2014). The present study investigates the capital markets integration, not the firms' integration. Indirect effects of IFRS adoption on the overall accounting structure may be reflected at a country level, not at firm level. I used the stock prices data, which helps to control for other exogenous factors affecting on the capital market integration such as rule of law, foreign exchange risk and other macroeconomic variables affecting the integration of capital markets. The study includes a comprehensive sample composed of all the countries which have capital markets and benchmark indices. Impact of IFRS adoption on CMI is measured by beta and sigma convergence methodologies. In short, the current study is an original addition to literature, due to the importance of the question, the theoretical development of hypothesis, large sample, long data period and sophisticated econometric Model.

Findings of the study are an interesting contribution to the literature in several ways, particularly it extends the literature on the impact of adopting same accounting standards

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that is IFRS. Ball (2001, 2006) points out that the adoption of IFRS does not guarantee the accompanying positive impacts, there is a number of other factors involved. There are also costs to IFRS. Similarly, Nobes (2006, 2013) argue that there are still differences between the accounting numbers of different countries even after adopting IFRS. Implementation and enforcement mechanism of accounting standards and different reporting incentives play a key role in IFRS adoption outcomes. Findings of current study states that IFRS adoption has no significant impact on world's capital integration conjectures that IFRS does not have a uniform impact across the world. The favourable impact of IFRS on capital markets such as decrease in cost of capital (Daske et al., 2008; Li, 2010), increase in stock liquidity (Daske et al., 2008), and cross border investments (DeFond et al., 2011) are more evident in the countries with the stronger enforcement mechanisms.

It also contributes to the discussion of capital markets integration literature. The information related barriers pointed out by Bekaert (1995) are still present even after adopting the same accounting rules. Or the effect of IFRS is not significant enough to mitigate all the information related barriers.

Results of adopting IFRS and its impact on the integration of capital markets are very important for the investors, managers, researchers, and policymakers for decision making. It can help investors in their decision about the diversification of their portfolio. Similarly, researchers can further explore the reasons for differences in accounting systems even after adopting IFRS. Policymakers should device polices to get the maximum out of IFRS adoption and mere adoption does not result in automatic advantages.

The rest of the dissertation is organized as follow. Chapter two provides the background literature and hypothesis development. Chapter three includes the details about data and methodology (sample selection, data sources, research design and econometric model used). Chapter four discusses the empirical findings and results. Chapter five provide the summary of findings, conclusions are drawn based on the findings, limitations of this research and suggestsions for future research.

CHAPTER 2

2 Literature Review and development of hypotheses

This chapter is organized as follows. Section 2.1 provides the importance of Capital Markets Integration (CMI). Section 2.2 explains the factors which are barriers to Capital Markets Integration (CMI). Section 2.3 shows the role and importance of IFRS in current capital markets. Section 2.4 reviews the effects of IFRS adoption on capital markets such as Transparency, Accounting quality, Comparability, Market liquidity and Cost of capital and Cross-border investments. Section 2.5 explains the role of Accounting harmonization in Capital Markets Integration (CMI). Finally, section 2.6 leads to the Hypothesis development.

2.1 Importance of Capital Markets Integration (CMI):

Economic theory suggests that efficient capital markets improve the allocation of resources and capital, resulting in economic growth and poverty alleviation. A large body of empirical research investigates how capital market development contributes to economic growth and evidenced positive contribution (King & Levine, 1993; Osada & Saito, 2010).

Theoretically, capital markets are said to be integrated if the "law of one price" holds. It means that assets providing same cash flow command the similar return, irrespective of the domicile of issuer and asset owner. In other words, if firm issues fixed return securities in two countries or regions, it must pay the same interest rate to both sets of security holders (Jappelli & Pagano, 2008).

Researchers define capital markets integration (hereafter, CMI) in different ways. Most comprehensive and easy to understand definition is given by Stulz (1981) according to whom if the returns on the assets issued and traded in the capital markets of different countries are correlated and comparable to each other, those markets are integrated with each other. Bekaert and Harvey (1995) defined capital market integration as "markets are completely integrated if assets with the same risk have identical expected returns

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irrespective of the market". Given above definitions, capital market integration can be measured by matching returns on stocks issued in different markets having identical cash flows.

In the current economic environment, CMI is fundamental to economic growth. Countries are removing the barriers between them for the free capital flow to the markets. One big example in this regard is different regional trade and economic unions, these are the agreements between the governments of different countries to remove the different quotas, tariffs, and taxes, and harmonize the overall regulatory system. Such agreements are growing over time because a great number of benefits are associated with them. Primary motive of such regional trade agreements/unions (e-g EU, NAFTA & etc.) are economic growth, which is achieved by removing barriers to cross-border investments; creating deeper and more integrated capital markets in the member countries; increasing competition and reducing costs of raising capital, improving access to financing for businesses and integrated financial markets. There is much empirical evidence that shows different regional trade and economic unions are established in order to achieve the benefits of integrated markets and free trade (Aggarwal & Kyaw, 2005; Click & Plummer, 2005; Guiso, Jappelli, Padula, & Pagano, 2004; Osada & Saito, 2010).

When capital markets are integrated, they result in a more efficient financial system and increased output, more jobs, lower prices and decreased the cost of capital. Better integrated markets mean "deeper capital markets with a single pool of liquidity and diversified funding sources" (Bekaert et al., 2003; P. B. Henry & Lorentzen, 2003). Previously, many studies explored the importance of financial integration. Benefits associated with financial integration are categorized into following three interrelated groups:(Baele et al., 2004).

(a) Better Risk sharing: Financial integration improves the functions accomplished by the financial systems (to transfer funds from ultimate lender to borrowers in the economy), which contribute to a better risk sharing and diversification; **(b) Better capitalization:** it enables economic agents to reach more sources of finance, by increasing the supply of funds for investment opportunities (Levine & Zervos, 1998).

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An integrated financial market removes all forms of barriers to the exchange of financial assets and flow of capital, allowing for the efficient allocation of financial resources for investments and production; and **(c) Financial development and economic growth**, finally it promotes level of competition and the efficiency of the process of financial intermediation by limiting intermediation costs and lender margins.

In summary, integration of financial markets reduces the cost of intermediation, a more efficient allocation of capital resources, a better access to the capital and money markets, and an upturn in portfolio diversification. Through all these channels, a higher degree of financial integration implies more financial development and, therefore, economic growth.

On the other hand in case of segmented capital markets, "investors in each country have to bear all the risk of the economic activities of that country"(René M Stulz, 1999). Accordingly, investors, being risk-averse, will demand a risk premium for keeping this risk. This risk premium leads to higher expected returns with the riskiness of a specific country's market portfolio. While in integrated financial markets, foreign investors are free to invest in domestic markets and international markets. With these cross-border investors, there is improved risk sharing since a country's risk is borne by both foreign and local investors. In fully integrated markets, the resulting implication is that securities with rights to identical streams of dividends but issued in different countries will trade for the same price (René M Stulz, 2005). More importantly, the cost of capital is posited to decline since the risk premium involved is adjusted for the risk sharing benefits due to financial integration (René M Stulz, 1999).

Supportive of this contention, Henry (P. B. Henry, 2000a, 2000b) finds improvements in integration through financial liberalization. It is also associated with improvements in cost of capital reduction and increases in the levels of investments. The underlying argument is that financial market integration lowers the cost of capital and this reduction, in turn, will positively affect investments and ultimately economic output (P. B. Henry & Lorentzen, 2003).

2.2 Barriers to Capital Markets Integration (CMI):

Regardless a number of benefits associated with CMI, there are actually obstructions which limit the level of integration between capital markets. When identical stocks generate different returns one would tend to conclude that capital markets are not integrated with each other, they are segmented. For instance, some countries have legal barriers which prevent free capital flow from the country (Iran, North Korea). Other examples of barriers are capital controls, tax codes, accounting and auditing differences, different bankruptcy law, different quality of judicial enforcement, etc. However, evaluating integration between different countries needs a careful examination. Even the countries having same common legal and regulatory framework may generate different returns. Beyond legal barriers, there might be economic barriers, like situations of asymmetric information that induce investors to evaluate differently assets that are otherwise identical.

Bekaert (1995) identifies three types of barriers, two can be grouped as direct barriers to investment and integration and one indirect barrier. **The first** group of barriers can be renamed as Legal barriers; these are direct restrictions/constraints on foreign investments. For instance, some of the sectors of the market may be closed to foreign ownership, or there are limits on direct ownership of equity.

The second group of barriers is related to the risks involved to the internal environment of the country, (Examples of such risks include liquidity, political, economic policy, and currency risks (Bekaert et al., 2003). For instance, exchange and capital controls that affect investment in emerging markets and the repatriation of dividends and capital from emerging markets. Like in some markets, there are certain restrictions, for example, minimum investment period should be 60 days, restrictions on the remittance of profits for certain period. Income taxes on dividends/capital gains are also direct barriers in this second group.

The third group is indirect barriers that are **information related barriers**. The main contributing factor here is the regulatory and accounting environment. The quality of accounting numbers plays an important role in investors' confidence. For instance, investors may not have satisfactory information on other countries markets and on the

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financial health of the companies, the process of settlements might be slow and bungling, accounting standards might be poor quality, and investor protection rights might be insignificant. Financial information plays a large role in the international investment decisions, and a barrier to financial information (different GAAPs) cause additional cost and risk.

With the uniformity of accounting standards, the risk of financial information related barriers will be mitigated (Yan et al., 2013). Actually, this study also investigates how the removal of these informational barriers impact the capital market integration.

2.3   Importance of IFRS in capital markets:

Accounting standards were present almost 500 years ago. However, accounting standards used nowadays are mostly developed in western countries with well-developed capital markets and a large number of shared ownership rights. Accounting standards play a very important role capital market in a number of ways, for instance, they help to resolve severe agency issues. Generally, insiders, the managers who control the firm investment decisions are better informed about the investment opportunities than outsiders those are real investors or owners of the firm. Manager's incentives may be different from owners because they want to maximize their own wealth. So here come accounting standards which provide the solution to above agency issue by providing information to outsiders about the performance of firm and managers. Therefore accounting standards are very important in current complex financial markets because they fortify how capital is allocated and performance is monitored and rewarded (Brown, 2011).

Current changes in the global business environment increased the need of having a single set of accounting standards. As pointed out by vice chairman of IASB *Ian Mackintosh,* current global economy witnessed a combination of the removal of restrictive trade barriers, the liberalization of financial markets, advances in technology

and the opening up of emerging and developing economies[1]. All above contributed to creating a different business environment. Now the companies operate their businesses worldwide not only in their home country similarly they collect capital from different capital markets across the world with a complex capital structure. In this scenario, the financial statements of the companies must be comprehensive and published according to similar accounting standards to attract the investors from different parts of the world. This would make it easier for public companies to compete abroad, raise capital, win global contracts, and provide financial details.

International Accounting Standards Board (IASB hereafter) an independent standard-setting body makes this job easier by developing and maintaining International Financial Reporting Standards (IFRS Standards), a set of comprehensive accounting rules. The main objective to develop IFRS Standards is to bring transparency, accountability, and efficiency to financial markets around the world. IASB is a public-interest organization with award-winning levels of transparency and stakeholder participation. Its head office is in London and 150 staff members are from 30 different countries. The 12 members Board is appointed and overseen by 22 Trustees around the world, who are in turn accountable to a Monitoring Board of public authorities[2].

Previously IFRS was known by the name International Accounting Standard (IAS). International Accounting Standards Committee (IASC) the predecessor of IASB, was responsible for issuing IAS since after its foundation in 1973 to 2000 when the IASC was converted to IASB. IAS was issued in order to fix the global accounting standard need thus there would be better financial understanding of all companies. But then, on April 1, 2001, IASB (International Accounting Standard Board) replace the IASC and took over responsibility to develop international accounting standard and named it IFRS. The aim of the IASB in formulating the IFRS is to "develop, in the public interest, a

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[1] IAN speech; 7th May, 2014.
http://archive.ifrs.org/Alerts/Conference/Documents/2014/Ian-Mackintosh-speech-MBS-May-2014.pdf
[2] IFRS website; https://www.ifrs.org/about-us/our-structure/

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single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reporting to help participants in the world's capital markets and other users make economic decisions." The IASB is better-funded, better-staffed and more independent than its predecessor, the IASC. Nevertheless, there has been substantial continuity across time in its viewpoint and in its accounting standards (Ball, 2006).

Countries around the world adopt IFRS standards due to following simple reasons. The world is becoming global village without borders, and multinational companies' want to expand their territories across borders. Investors want to increase their portfolio by investing in across borders securities. According to Philips Brown (2011) following benefits are expected by adopting IFRS: IFRS adoption helps to eliminate barriers to cross-border investing; to increase the reliability, transparency, and comparability of financial reports; to increase market efficiency, and to decrease the cost of capital. A typically unstated benefit is to share the costs of standard-setting and securing compliance with accounting standards.

Apart from the development and maintenance of comprehensive IFRS Standards, another achievement of IASB is their worldwide adoption. By the end of 2016, IFRS standards are mandated for public listed companies in 122 jurisdictions out of 147 jurisdictions, including the European Union and 14 of G20 countries. I**FRS Standards** are used by publicly accountable companies—those listed on a stock exchange and financial institutions, such as banks. Authoritative interpretations of the Standards, which provide further guidance on how to apply them, are developed by the IFRS Interpretations Committee and called IFRIC Interpretations. In 2009, IASB also issues standards for small and medium enterprises known as IFRS for SMEs.

2.4 Effects of IFRS adoption on capital markets:

IASB claims that adoption of IFRS standards by companies across the world will benefit to both the investors and the companies preparing financial statements. They also claim that IFRS require higher quality measurement and recognition rules; they are more transparent than local GAAP, and that adoption IFRS reporting standards worldwide

results in enhanced comparability. It will also reduce the cost of financial statements preparation. As the IASB puts it, "a single set of high quality, uniform, globally-applied, and enforced accounting standards is essential for both domestic and cross-border investment and financing decisions." It is desirable to have a uniform set of accounting standards because inconsistency in accounting standards is causing confusion in the investor community.

With the strict and steady application of IFRS standards, capital market participants will have higher quality information and can make better-informed decisions. Thus markets allocate funds more efficiently and firms can achieve a lower cost of capital (Tarca, 2012). Almost similar reasons were presented in (EC1606/2002) regulation of mandatory IFRS adoption by listed companies of EU and similar reasons were used by other jurisdictions in their IFRS standards adoption decisions (Brown, 2011).

IFRS standards promote social welfare by refining the information disclosure given by firms and increasing their comparability. IFRS requires a more comprehensive set of disclosure than most of the domestic GAAPs (Daske et al., 2008). It has also been argued that IFRS (and its predecessor IAS) constrains managerial discretion(Barth, Landsman, & Lang, 2008). Therefore, IFRS enhance accounting quality, which results in an overall transparent information environment.

IASB and advocates of IFRS claim that IFRS have a comparative advantage over domestic GAAPs. There are many types of research which proved the evidence of a comparative advantage.

First of all, as given in the conceptual framework of IASB that financial statements primary users are decision makers (investors), the IFRS are claimed to more capital market-oriented than other local GAAPs and, therefore, more useful to investors (Hail, Leuz, & Wysocki, 2010).

Secondly, IFRS improve the accounting quality by limiting choices of accounting methods and reducing managerial discretion (Ashbaugh & Pincus, 2001; Barth et al., 2008).

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Third, IFRS provide more relevant information to investors with better measurements and recognition principals that reflect true and fair economic position of firms, hence providing more relevant information for investment decisions (Barth et al., 2008).

Fourth, IFRS improves related disclosures requirements, resulting in reduced information asymmetries and agency problems between firms and their shareholders (Ashbaugh & Pincus, 2001; Hail et al., 2010; Leuz & Verrecchia, 2000).

Fifth, Focusing on capital markets, IFRS adoption results in increased market liquidity and lower cost of capital, the theoretical insight of this argument was provided by Leuz and Wyscoki (2016). Better quality financial reporting can reduce estimation risk and improve risk sharing in the economy, which results in an overall decrease in firms' cost of capital(Barry & Brown, 1985). Empirical evidence also supports the overall argument that application of IFRS result in increased market liquidity and decrease in cost of capital (Daske et al., 2008). IFRS have a positive impact on information contents of earnings (Landsman, Maydew, & Thornock, 2012), analyst forecasts abilities enhanced with IFRS (Byard, Li, & Yu, 2011; Horton, Serafeim, & Serafeim, 2013), and intra-industry information transfers across countries increased (Kim & Li, 2011).

Sixth, Last but not least, IFRS increases the transparency and comparability of financial statements, resulting in a decrease in investor's home biases. Investors' confidence in international markets increases which result in increased cross-border investments and overall integration of markets (DeFond et al., 2011).

Brian Singleton (2015), reviews more than 100 empirical studies about the IFRS adoption effects from almost all perspectives, like IFRS adoption impact on value relevance, earning management, comparability, the cost of capital, the cost of debt and many other attributes, and conclude that overall there is positive impact of mandatory IFRS adoption. But all those studies were primarily about EU countries.

In contrast, the opponents of IFRS points out several reasons that IFRS adoption could not secure the desired benefits. Firstly, different reporting incentives. Financial reporting is molded by incentives and incentives are shaped by the institutional structures of the country (Ball, 2001). Therefore, even with the adoption of IFRS, there can be different

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reporting incentive which is a hurdle in achieving desired effects of IFRS. Second, as mentioned earlier IFRS are principal based, they reduce the different accounting alternatives which may result in a less true and faithful representation of the firm's underlying economics. Third, since IFRS are principle based, they increase the managers' decision flexibility, this flexibility can be used as an opportunity for earning management by managers (Barth et al., 2008). The fourth is the enforcement mechanisms. If the enforcement mechanisms are weak, even with the high-quality IFRS, the overall financial reporting quality will decrease (Ball, 2006; Ball, Robin, & Wu, 2003; Hail et al., 2010).

Next sections will discuss the how IFRS enhance the transparency, comparability and accounting quality and how it would affect the overall information environment and capital markets.

2.4.1 Transparency:

The term Transparency is widely used in financial reports and accounting literature. It is considered one of the desirable characteristic of financial statements. However, there is no well-defined definition for "financial reporting transparency". For instance, both IASB and FASB conceptual frameworks do not have it as a qualitative characteristic.

The dictionary meaning of transparency is that something that allows to see through clearly. This idea implies visibility and carries over into notions of openness and communication in business, as opposed to secrecy and concealment. Barth & Schipper (2008) defines financial reporting transparency as "Financial reporting transparency is the extent to which financial reports reveal an entity's underlying economics in a way that is readily understandable by those using the financial reports". This definition is based on two core concepts 1) underlying economics and 2) readily understandable

Accounting point of view, the underlying economics of firm include its resources (assets), and claims to those resources (liabilities and equity), changes in resources, claims, and cash flows (Hicks, 1975). And in current business environment risks is also included. Financial reports should include enough detail to be helpful to users in making

economic decisions, but not so much detail that it is difficult for users to differentiate the entity's underlying economics.

To be transparent, financial reports need to include information about an entity's underlying economics and be understandable to users. Barth & Sechipper point out that theoretical research suggests increased reporting transparency is a worthy goal, with the potential to reduce the cost of capital, and that empirical research provides evidence that greater financial reporting transparency is associated with lower cost of capital (Barth & Schipper, 2008).

If the financial report allows readers to understand the reporting entity's financial performance and the financial position they are said to be transparent. There is no direct method to measure Transparency. Researchers use different proxies as evidence to access transparency. Three major areas of research that may be regarded as providing evidence on transparency are:

• Investment analysts' forecasting ability;

• Value relevance; and

• Accounting quality.

There are a number of benefits associated with improvements in Transparency. It decreases the uncertainties surrounding a company (lowering estimation risk) and reduces the information asymmetries problems between different groups' e.g. insiders and outsiders (reducing adverse selection problems). For instance, investors want a higher price for their investment ('price protection') to guard against the risks of uncertainty and the risks that insiders with superior information will take advantage of them. The decrease in asymmetric information and uncertainty build investors' confidence, they reduce their demand for price protection, and therefore allows companies to raise capital at lower cost. And the decrease in cost of capital is advantageous for the whole economy. There will be an increase in investments with the lower cost of capital, which results in economic growth. Financial reporting and disclosure are considered to be an important part of the institutional setting that affects transparency (Bushman, Piotroski, & Smith, 2004).

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Improved transparency can have other benefits. It enables better monitoring – of managers by owners, and of insider shareholders by outsider shareholders. This facilitates owner/ outside shareholder interventions in the management of the business and protects them from managers/inside shareholders expropriating their assets ('expropriation risk').

A worthy question is that how does the IFRS adoption empirically impact on the Transparency of financial reports? Many studies attempt to answer it, I briefly review some studies below, and how these link to the capital markets.

J. P. Preiato, Brown, and Tarca (2013) investigate the accuracy and differences of analysts' forecasts for mandatory IFRS firms, voluntary IFRS firms, and non-IFRS firms in 39 countries for 2003–2009. They found a little evidence that IFRS adoption improves overall information environment resulting in a lower error or less dispersion in analysts' forecasts, in a controlled enforcement environment'. Their results are against other studies and they suggest the possible reason that other studies have often focused on EU countries and the immediate post-adoption period. In contrast, they include a longer time period, and we explicitly allow for variation in the degree of enforcement.'

Houqe, Van Zijl, Dunstan, and Karim (2012) analysed a sample of 5,926–19,442 firms from 46 countries, for the period of 2000–2007 'They concluded that mandatory IFRS adoption in an environment of weak investor protection right does not improve earnings quality (measured by the extent of discretionary accruals), but that mandatory IFRS adoption does improve earnings quality where investor protection is stronger.

Horton et al. (2013) investigate the accuracy of analysts' forecasts, using 2,235 firms' data from 46 countries for 2001–2007. They found that in post-IFRS adoption period, forecast accuracy and other measures of the quality of the information environment increase significantly, more for mandatory adopters relative to non-adopters and voluntary adopters'. Actually, when there is a large difference between domestic GAAP earning and IFRS earnings, IFRS adoption results in more improvements in forecast accuracy. They also conclude that increase in forecast ability is due to greater comparability.

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There is mixed evidence regarding the impact of IFRS adoption on the Transparency. The studies which use investment analyst forecast ability as a proxy for Transparency conclude that IFRS adoption result in increased forecast accuracy of analyst, and decreased errors and dispersions (Beuselinck, Joos, Khurana, & Meulen, 2010; Byard et al., 2011; Choi, Peasnell, & Toniato, 2013; Demmer, Pronobis, & Yohn, 2016; Horton et al., 2013; Jiao, Koning, Mertens, & Roosenboom, 2012; Tan, Wang, & Welker, 2011; X. Wang, Young, & Zhuang, 2008), a few find weak or no relationship between analyst forecast ability and IFRS adoption(J. Preiato, Brown, & Tarca, 2015). Evidence from the value relevance studies is also mixed, some studies found that IFRS results in increased value relevance (Barth, Landsman, Lang, & Williams, 2012; Barth, Landsman, Young, & Zhuang, 2014; Kang, 2013; Morais & Curto, 2009; X. Wang et al., 2008), some found no significant relationship (Platikanova & Nobes, 2006) and some found negative relationship (Zéghal, Chtourou, & Sellami, 2011). Apart from Zéghal et al. (2011) rest of the studies found increased value relevance following IFRS adoption, so overall we can conclude that IFRS result in greater value relevance.

The balance of above evidence concludes that IFRS adoption mostly improves Transparency that is associated with a number of benefits. Transparent financial information decreases ambiguities regarding the companies, resulting in lower estimation risk. It also solves adverse selection problem by reducing asymmetric information between different stakeholders' e.g, management and investors. The decrease in the uncertainty and information asymmetry enhance investor confidence in the market, their demand for higher prices (price protection against estimation and asymmetry risk) will be lowered. It results in lower cost of capital for the companies and overall economies. However, this improvement in transparency is more evident with the stricter enforcement of rules and regulations.

2.4.2 Accounting quality:

Although accounting quality is one of the stated objectives of IFRS "to develop a single set of high-quality accounting standards" however it is not defined anywhere explicitly. Usually, accounting amounts that better reflect a firm's economic position may be obtained by applying either IFRS or local GAAPs accounting measurements rules, if it

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better helps the investors in the investment decision, these amounts are considered possessing high quality. Accounting quality is dependent on the decision relevance of the user, and there is no superior measure to model the high accounting quality(Dechow, Ge, & Schrand, 2010). One way of improving accounting quality is limiting managers opportunistic behavior by limiting accounting choices (Ashbaugh & Pincus, 2001).

Prior literature used a different type of proxies for assessing accounting quality, for instance, earning management in following ways. Comparatively, smooth income from one year to next is taken as evidence of deliberate income smoothing which represents poor accounting quality. Similarly, if there are high accruals in compared to net income, it shows deliberate manipulation of profit. 'Accruals' in this context refer to the difference between cash flows on the one hand and costs and revenues as they are measured in financial reporting on the other. Relative slowness in making provisions for losses is taken to be a sign of deliberate manipulation of both profit and the balance sheet. Its test is called timely loss recognition. Timely loss recognition may be regarded as one-half of a broader practice – 'conditional conservatism', which is a greater readiness to recognize bad news than good news in accounts. A decline in conditional conservatism is regarded as a sign of declining accounting quality (Singleton-Green, 2015).

IFRS are principles-based accounting standards, designed to limit allowable accounting alternatives and to require accounting measurements that better reflect a firm's underlying economic position and financial performance[3]. There are many empirical studies, which focused on whether IFRS (or IAS) adoption leads to higher quality accounting and whether the resultant easing of information frictions affects capital market outcomes.

The evidence provided is mixed, overall, some found that entities applying IFRS show fewer earnings smoothing, less managing of earnings towards a target (Barth et al., 2012; Barth et al., 2008; H. Chen, Tang, Jiang, & Lin, 2010; Houqe et al., 2012), more

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[3] IASB website; https://www.ifrs.org

timely recognition of losses (conditional conservatism) (Barth et al., 2008; Piot, Janin, & Dumontier, 2011), and a higher association of accounting amounts with share prices and returns (value relevance) (Barth et al., 2014; X. Wang et al., 2008). However, following studies fond contrary evidences i.e no improvements in accounting quality (L. Cai, Rahman, & Courtenay, 2008; Garcia Osma & Pope, 2011), increase in earnings smoothing, reduction in timely loss recognition, deferring accrual recognition (Ahmed, Neel, & Wang, 2013; Callao & Jarne, 2010).

On the balance, we can conclude that IFRS most likely improves accounting quality. This increased accounting quality, in turn, help the investors in better decision making and improve the overall confidence and efficiency of capital markets.

2.4.3 Comparability:

IASB conceptual framework defined comparability as "the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena". Comparability is one of the desired outcomes of implementing IFRS (same accounting standards) worldwide, However, requiring firms to use a set of uniform accounting standards does not necessarily result in improved comparability (FASB,2008; IASB,2008).

Up till 2016 IFRS has been adopted in 122 countries, the application of IFRS makes it less costly for investors to compare and evaluate firms within and outside industries, domestic and international markets (Covrig, Defond, & Hung, 2007). The regulators/standard setters also use this argument of comparability for promoting the implementation of a single set of accounting standards. Predominantly, it is observed that a large number of investors and other users of financial statements support the goal of a single, high-quality global accounting language as a means of improving the quality and comparability of financial reporting internationally.

With IFRS adoption even if the quality of financial reporting does not improve as claimed by the standard setter, use of same accounting rule is advantageous to investors (Daske et al., 2008). In other words, unlike local GAAPs, IFRS contributes towards a single set of accounting standards which facilitates comparability. This is significant

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since different accounting standards have been found a barrier to the flow of cross-border investments. For instance, (Bradshaw, Bushee, & Miller, 2004) find that U.S. investors are reticent to invest in non-U.S. GAAP countries.

Advocates of IFRS adoption claim that increased uniformity in accounting rules enhances the financial statement comparability (Barth et al., 2012; McCREEVY, 2005). However, due to managers flexibility in IFRS implementation accounting quality varies across countries (D. Henry, 2008). Thus, IFRS adoption is only likely to improve comparability when it is credibly implemented. The Conceptual Framework also argues that a uniform set of standards only increases comparability when it is faithfully applied (i.e., credibly implemented). So uniformity and faithful application are necessary for comparability. DeFond et al. (2011) measure the comparability of both aspects that are uniformity and implementation credibility and found that with the implementation of IFRS standards comparability increased.

Comparability is not well defined or directly measurable from empirical testing perspective. Previous studies used a variety of proxies to access comparability. Brain singleton (2015) in his review paper classified empirical studies on comparability into five categories. First are the studies which used financial reporting information changes, for instance, increase/decrease in accounting policies uniformity, increase/decrease in the similarity of correlations between earnings or accruals and cash flows. Second, studies which used the increase/decrease in analysts forecast ability as comparability measure. Third are the studies that used the value relevance as a measure of comparability. Fourth are the studies which analyze the impact information transfer from one firm to another. Last is the opinion surveys.

Prior literature examines the impact of IFRS on comparability from many dimensions, by using different proxies, different time periods and sample countries. The finding of the studies are mixed, for instance, Cairns, Massoudi, Taplin, and Tarca (2011) used the accounting policies choices data of the UK and Australia to measure the comparability and they found increased comparability in property, held for trading financial instruments, derivatives, and share-based payment. However, comparability decreased for investment property and other financial assets and liabilities. Beuselinck, Joos, and

Van der Meulen (2007) use the accounting earning data 14 EU countries and use the correlations between accruals and cash flows to measure comparability. They found that there is convergence in accrual and cash flow data over the time, however, there is no sudden improvement after mandatory adoption.

A comprehensive study on the comparability between IFRS and US GAAP accounting amounts has been done by Barth et al. (2012). They investigate comparability between IFRS and US GAAP with a large data sample, consisting of 3,400 firms from 27 countries and a longer time period 1992–2009 (17,714 firm-year observations). Basically, they used 'value relevance to access comparability'. They found that US GAAP amounts are more value relevant than IFRS standards amounts both pre and post-adoption periods, but that the gap between the two is narrower in post-adoption. It infers that there is a relative increase in value relevance for the IFRS amounts. Jayaraman and Verdi (2014) also use value relevance as a measure of comparability. They analyze 34,699 industry-country pair-year observations for the period 1994–2007. Simple correlations tests between financial reporting earnings and stock market returns reveal that 'accounting comparability increases by 19% (in relative terms) after the adoption of IFRS standards for euro members, while it remains unchanged for non-euro members. Similarly Cascino and Gassen (2015) measure changes in comparability with correlations tests between accounting income and stock market returns and between accounting income and cash flows. The results show that 'the overall effect of mandatory IFRS adoption on the comparability of financial accounting information appears to be minimal'. They also find that 'only the firms with high compliance incentives experience statistically significant improvement in comparability around IFRS adoption.' In a test about public vs private firms, they conclude that 'the accounting information of public firms adopting IFRS becomes less comparable to the information provided by local GAAP private firms from the same country after adopting IFRS'.

On the other hand, Horton et al. (2013) examine the analyst forecast data and found that accuracy of the forecast has been increased for analysts who hold portfolios based on IFRS standards compared to Local GAAP to Multiple GAAP. Moreover, this effect is

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even greater for analysts with portfolios that move from Multiple GAAP to IFRS.' With above evidence, they argue that this forecast accuracy increase is due to increase in comparability.

C. Wang (2014) examine the effects of mandatory IFRS adoption on international information transfers. She found that 'both abnormal price and volume responses to earnings announcements are significantly higher for non-announcing firms using the same GAAPs in comparison to non-announcing firms using different GAAPs.' The author also evidenced that 'non-announcing firms that are mandatory IFRS adopters have significant increases in market reactions compared to voluntary adopters' earnings signals post-mandatory adoption. However, non-adopters do not experience these increases in market reactions over the same period.'

Financial reporting can never be perfectly comparable and even adopting IFRS cannot guarantee uniform application of IFRS across national jurisdictions, nor is it likely to generate comparability. Apart from same accounting standards, other factors also a play role in the comparability, for instance, Cascino and Gassen (2015) found that with the same accounting standards high compliance incentive enhances comparability. Actually, as IFRS are principal based and allows choices on a number of accounting issues, incomplete comparability is inevitable unless all firms make identical choices and judgments, which seems unlikely (Sunder, 2011).

There is a mixed research evidence about that IFRS enhance comparability. However, on balance evidence points out that with IFRS adoption there is an overall improvement the number of required disclosures and the quality of financial information, thereby enhancing financial statement comparability across countries (Ashbaugh & Pincus, 2001; Barth et al., 2012; DeFond et al., 2011; Florou & Pope, 2012; Hong, Hung, & Lobo, 2014). And, when the financial statements are more comparable, it will remove the barrier in the cross-border investments. With the increase in cross-border investment, capital markets will be more integrated to each other.

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2.4.4   Market liquidity and cost of capital:

Market liquidity and lower cost of capital are fundamental to the efficiency of the capital market. If the investors can freely buy and sell securities at the fair value, the market is said to be liquid. In the case of illiquid markets, it may be hard to buy and sell securities without extra premium or discounts in fair values. Liquid markets are essential to the market efficiency, they make the trade in securities easier and cheaper. Moreover, decreased the cost of capital is also important to the economy and overall welfare of society. Lower cost of capital results in an increased investment that results in economic growth (Singleton-Green, 2015). IASB and proponents of IFRS claim that IFRS adoption will result in reduced cost of capital that will provide the better opportunities for investment and diversification (Tweedie, 2006).

Previous sections provide the evidence that IFRS adoption results in an increased in transparency, higher accounting quality, and improved comparability. Proponents claim that this improved transparency and comparability result is lower asymmetry information and estimation risk in the capital market, increased cross-border investments and consequently an increase in market liquidity and a decrease in cost of equity capital. The EC regulation mandating IFRS (EC 1606/2002) itself cites capital market benefits as a primary reason behind the switch, observing that they contribute "to the efficient and cost-effective functioning of the capital markets."

Daske et al. (2008) focus on IFRS and its capital market outcomes, authors conclude that IFRS adoption improves liquidity in the capital market. They also found evidence of a decrease in cost of capital, which contributes to higher equity valuations. However, they find these effects to be present only in countries with strong legal enforcement and proper reporting incentives.   In a related study, the authors find benefits such as improved liquidity and lower cost of capital are more likely for firms that are 'serious' adopters of IFRS (defined as firms with a commitment to transparency).

Overall, empirical analysis on the IFRS adoption impact on the cost of capital and market liquidity conclude that IFRS adoption results in lower cost of capital ((Daske et al., 2008; Daske, Hail, Leuz, & Verdi, 2013; Gkougkousi & Mertens, 2010; Hail & Leuz, 2007; Li, 2010), and increased market liquidity (Christensen, Hail, & Leuz, 2013;

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Daske et al., 2008; Drake, Myers, & Yao, 2010; Hail & Leuz, 2007). However, Lee, Walker, Christensen, and Zhao (2010) findings show that countries with low incentives to financial reporting did not observe any reduction in the cost of capital. Only the countries with high reporting incentive result in a decreased cost of capital following IFRS adoption.

From the above evidence, we can conclude that IFRS adoption results in greater transparency and comparability of financial statements that result in increased market liquidity and lower cost of capital. Further, enforcement mechanisms and reporting incentives plays are important for the positive outcomes of IFRS adoption. Therefore, capital markets would be more efficient and cross-border investments will increase and returns on the capital markets will be more integrated with each other.

2.4.5 Cross-border investments:

Theoretically increased firms obligation to transparency and disclosure requirements can lower information asymmetry in overall capital markets and thus enhance investors' confidence in the market, they are more willing to trade, resulting in stock price boost (e.g.Botosan & Plumlee, 2002; Diamond & Verrecchia, 1991; Lambert, Leuz, & Verrecchia, 2007). With the application of IFRS transparency and comparability of financial statements has been enhanced (according to previous sections evidence), means increased transparency and comparability should lower the barriers to the cross-border investment.

There is a renowned bias among investors, which restrict them from investing in foreign countries. This bias is called 'home bias', one of the main reason behind this is the information asymmetries among the local and foreign investors. Foreign investors have to spend additional amount to obtain and process the information regarding (to remove information asymmetric) the international investment, because of this additional costs they are at a disadvantage compared to domestic investors and don't prefer to invest in foreign countries.

IFRS adoption changes the overall financial information environment, this change has the potential to reduce information barriers encountered by investors in foreign markets.

According to Messod Daniel Beneish, Miller, and Yohn (2012), there are three types of information costs related to cross-border investment and IFRS adoption may help to limit these costs. (1) Costs related to the processing of information from foreign markets (Information processing costs), (2) Costs to overcome uncertainty about the quality of financial reporting, and (3) uncertainty about the distribution of future cash flows. If IFRS adoption helps in limiting some of the above costs, then it is expected that foreign investments will increase.

Previous research also suggests that there is difficulty in interpreting and comparing financial statements under different GAAPs, and it creates difficulty for investment decision possibly hinder cross-border investment. Worldwide IFRS adoption could resolve above issues, if IFRS brings more transparency (reducing information asymmetries) than local GAAPs and widespread of IFRS help in greater comparability (Ball, 2006), resulting in easy and less costly to understand foreign companies (because they are following a common set of accounting standards) to international investors. IFRS adoption improves the foreign investor's decision-making process in three ways. First, investors can learn IFRS (a single set of standards) at a lower cost compared to many country-specific GAAP, in this way IFRS adoption potentially decrease the information disadvantages of international investors relative to local ones (Gwen Yu & Wahid, 2014) and opens an easily accessible variety of foreign firms and markets for international investors (Amiram, 2012). Second, as IFRS is often perceived as being of a higher quality than many local GAAP. Finally, the use of harmonized accounting standards may increase the visibility of remote investments, putting these stocks on investors' radars (De George, Li, & Shivakumar, 2015). Overall, evidence in the previous sections suggests that IFRS adoption results in improved transparency, enhanced accounting quality and higher comparability (Ashbaugh & Pincus, 2001; Barth et al., 2012; DeFond et al., 2011; Florou & Pope, 2012; Hong et al., 2014; Jayaraman & Verdi, 2014; J. P. Preiato et al., 2013).

Cross-border capital flows can be classified into two main categories: Foreign direct investment (FDI), foreign portfolio investment (FPI). Foreign direct investment (FDI) means starting or investing in a direct business in a foreign country with an intention to

control it, such as buying or establishing some subsidiary by multinational company, on the other hand, foreign portfolio investment (FPI) is investing in financial assets, such as stocks or bonds, in a foreign financial market. Actually, the main difference between the two categories is of degree rather than substance. For instance in equity investments, an investment that carries 10% or more than 10% of the voting rights in the investee company is conventionally known as a foreign direct investment, while one that gives less than 10% is known as foreign portfolio investment. From a financial reporting point of view difference between two is very important. It is commonly expected that FDI investors have private information about potential investment because they buy whole companies or major share in them. Conversely, portfolio investors mainly rely on the public information that is information about the particulars of the company, its financial statements and etc. Both types of investors use financial information, however, we cannot say that IFRS adoption would affect both categories of investment in the same way (Singleton-Green, 2015).

Enhanced transparency and comparability might decrease the processing costs of international investors resulting in increased cross-border investment. Previous research also consists of above argument. For instance, Francis, Huang, and Khurana (2016) investigate the IFRS adoption impact on cross-border merger and acquisition (M&A) activity. By using 32 countries for the period of 2004 and 2006, they concluded that 'While there was an overall increase in M&A activity following the IFRS adoption, the increase was most pronounced for country pairs with a low degree of similarity in GAAP in the pre-IFRS adoption period.

Prior studies point out that IFRS adoption plays an important role in international capital flow in following ways. IFRS replace unfamiliar country-specific GAAPs with a single set of accounting standards (IFRS). Investors can learn IFRS at a lower cost and it decreases the asymmetric information between foreign and domestic investors. With the application of IFRS diversification in a portfolio of investors increased by putting inaccessible investments in the portfolio.

The impact of IFRS on cross-border investments has been investigated by using different variables and market data. For instance, L. A. Gordon et al. (2012) studied the

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impact of IFRS adoption on foreign direct investment (FDI). They use a large sample of 124 countries for a period of 1996–2008 and conclude that overall FDI inflows are positively associated with a country's decision to adopt IFRS. The results are statistically significant for developing countries, but not for countries classified as developed economies.'

Gowoon Yu (2010) analysed the changes in cross-border mutual fund holdings at firms level following IFRS adoption. He used 28 countries data for the period of 2000-2007, final sample includes 4,399 firms (650 voluntary IFRS adopters, 3,474 mandatory adopters, and 274 non-adopters). He found that, after IFRS adoption, the percentage of shares held by foreign mutual funds increases by 2.7% for mandatory adopters, by 2.4% for voluntary adopters, and effectively remains unaffected for non-adopters. The increase in foreign mutual fund holdings is positively correlated with the extent of national accounting differences reduction after adoption, with geographical distance, and with language differences. In other words, IFRS adoption greater impact on foreign mutual funds investment is evidenced in the countries, where there was large difference before adoption and adoption of IFRS results in a reduction of those differences, imposed by language and distance.

Apart from above, he also concluded that the effect of mandatory IFRS adoption on foreign mutual fund holdings is positively correlated with the degree of enforcement of accounting standards in each adopting country.

Florou and Pope (2012) examine the effects of mandatory IFRS adoption on the international holdings of institutional investors. They took a global sample of 10,852 firms from 45 countries over the world for the period covered is 2003–2006. The results show that in the post-adoption period (2005–2006) institutional ownership increases by more than 4% and the number of institutional investors increases about 10% for mandatory IFRS adopters, relative to non-adopters.

In addition increase in institutional holdings are mostly among investors whose orientation and styles advocate that they are using higher quality financial statements. Likewise, IFRS-related holdings increases are significantly higher for value and growth investors than for index and income investors.'

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Similar to Gowoon Yu (2010) they also find that 'the positive impact of mandatory IFRS adoption on institutional holdings is limited to countries where enforcement and reporting incentives are strong and where the divergence between local accounting standards and IFRS is relatively high'.

While most of the researcher focused on the institutional investors and mutual funds holding. Brüggemann et al. (2010) examine the effects of IFRS adoption on share trading by individual investors. They used trading volume data from the Open Market at Frankfurt Stock Exchange, which is an unofficial trading segment designed for individual investors to trade foreign (i-e, non-German) stocks'. The sample includes 5,637 unique firms data from 31 countries for the period of January 2002 to June 2008. The results show 45% increase in Open Market trading volume following mandatory adoption of IFRS. This effect is more evident for attention taking stocks (e-g, stocks experiencing an increase in media coverage following IFRS adoption). The estimated IFRS effect does not vary with institutional variables in the country- or industry-level. This result is consistent with their hypothesis that individual investors ignore the complex interaction between IFRS adoption and the stocks' institutional environment.

Hong et al. (2014) analyzed the impact of mandatory IFRS adoption on IPOs in global capital markets. Study results show statistically and an economically significant increase in the amount of capital raised from foreign markets' following mandatory IFRS adoption. Similar to Gowoon Yu (2010) and Florou and Pope (2012) increase in foreign markets IPOs are greater for firms in countries experiencing large accounting changes, and countries have a strong implementation credibility.'

Although most studies of cross-border investments around IFRS adoption look into equity investments and macroeconomic data, however, Messod D. Beneish, Miller, and Yohn (2015) used macroeconomic data of 47 countries, and empirically evaluate the differential effect of IFRS adoption on foreign investment into adopting countries' both debt and equity markets. They found a strong association between IFRS adoption and total (i.e., combined debt and equity investment) foreign investment into the country and that IFRS adoption has a significantly greater effect on foreign investment into a country's debt market than into its equity market'. They also find that 'post-adoption the

increase in foreign equity investment around IFRS adoption is positively associated with a country's governance quality, economic development, or creditor rights prior to IFRS adoption. Conversely, increase in foreign debt investment is not associated with a country's governance quality, economic development, and creditor rights prior to IFRS adoption.' Finally, they evidenced that the main reason for the increase in foreign investment is better financial reporting quality rather than improved comparability.'

L. Chen et al. (2015) examine the impact of mandatory IFRS adoption on international cross-listings by from 34 home countries 50 target countries. They conclude that 'firms that mandatorily adopt IFRS shows significantly higher cross-listing tendency and intensity in post-IFRS adoption. These firms more likely to cross-list their securities in countries, having mandated IFRS adoption with larger and more liquid capital markets.

Further, Similar to (Gowoon Yu, 2010)Yu (2010), Florou and Pope (2012) and Hong et al (2014) IFRS adoption has a greater effect on mandatory IFRS adopters from countries with larger accounting differences from IFRS, lower disclosure requirements and less access to external capital prior to IFRS adoption.'

There may be little differences in some studies, but overall there appears to be a harmony in the empirical evidence about the conclusion that IFRS adoption results in an increased foreign direct investment (FDI) (Messod D. Beneish et al., 2015; L. A. Gordon et al., 2012), increased foreign mutual fund holdings (DeFond et al., 2011; Gowoon Yu, 2010), increase overall institutional holdings (both mutual and others) (Florou & Pope, 2012), increase in individual foreign investments (Brüggemann et al., 2010), and increase in international cross-listing (L. Chen et al., 2015). Therefore, we can conclude that IFRS adoption results in increased cross-border investments. However, the effect is greater in the countries with large accounting differences with IFRS, lower disclosure requirements, less access to external capital before IFRS adoption, strong legal enforcement and proper reporting incentives. There is a need to explore some further questions. Like what is the effects of larger cross-border capital flows on the equity markets and the economy of IFRS-adopting countries. How the IFRS adoption will effect on the integration of capital markets.

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2.5   Capital market integration:

As claimed by the proponents of IFRS adoption and empirical evidence, adoption of IFRS results in increased cross-border investment, either because of greater transparency or greater comparability. This increase in international investments drive the world capital markets near to each other and capital markets returns will be more integrated to each other. In other words, companies with the same characteristics should, other things being equal, be valued in the same way in different markets and have similar opportunities to raise capital.

Increased cross-border investments do not mean an automatic advantage to everyone. Sometimes, firms in a specific country may benefit from domestic investors with the help of home bias. With the removal of international investment barriers, those domestic investors may found foreign firms more profitable. However, the overall effect of reducing home bias should be a more efficient allocation of capital with higher returns. If the cross-border investment barriers are removed, the further question would be how it benefits to capital market? Integration of capital markets would be one major expected benefit associated with cross-border investments. IFRS adoption has a positive impact on the cross-border investments (Messod D. Beneish et al., 2015; Brüggemann et al., 2010; Florou & Pope, 2012; L. A. Gordon et al., 2012; Hong et al., 2014; Gowoon Yu, 2010). Their findings are very important in the IFRS adoption literature; it shows how IFRS improve the efficiency of capital flow across geographic boundaries. However, these studies do not provide evidence that whether IFRS adoption improved financial market integration or not. This point is of great importance because it is ambiguous whether improvements in cross-border investments are sizeable enough to have a detectable effect on financial market integration (Yan et al., 2013).

F. Cai and Wong (2010) are the first who investigate 'The effect of IFRS adoption on global market integration', for the G8 countries (four are the IFRS adopter and four non-adopter). They measure integration with the help of simple correlation in market indices returns data for the period of 1995–2008. Results show that all countries' stock markets have an increasing trend in international integration over time, but IFRS-adopting

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countries have greater integration in their capital market in the post-adoption period compared to pre-adoption.

Although they found an increased integration in capital markets followed by IFRS adoption, however, their study used the limited and biased sample. They used simple correlation among returns to measure integration, while correlation is not an effective way to measure integration, more sophisticated measure to access integration is available in the literature.

Alnodel (2014) also studied IFRS adoption impact on the integration GCC (Gulf Cooperation Council) countries. He used stock market index returns data of the insurance sector for the period 2007-2013. Contrary to F. Cai and Wong (2010) cointegration tests results show that IFRS adoption by GCC countries has not any significant impact on the integration of their capital market. Pearson correlation coefficient reveals insignificant correlation coefficient of the daily index returns whether before or after the adoption of IFRS. They conclude that other institutional incentive may have a major role in the enforcement of accounting rules in GCC countries.

Yan et al. (2013) examined mandatory IFRS adoption impact on the capital market integration. They used firm-level data from 38 countries (20 IFRS adopter) for the pre-adoption (2003-2004) and post adoption (2005-2006) periods. Basically they used a difference-in-difference approach to access the impact of IFRS adoption on CMI, they measure market integration from two perspectives; first, the extent to which the global factors can explain the domestic stock returns and second is the speed with which domestic stock returns integrate global news. And found a significant positive relationship between IFRS adoption and integration of capital markets from both dimensions. They also conclude that the relationship between adoption of IFRS and capital market integration is more observable when differences between accounting quality IFRS and domestic GAAP are more significant and there is stronger legal enforcement regime.

Although Yan et al. (2013) found increased integration between the markets. But their study has some limitations, firstly they used the firm level data which always have biased sample selection and did not represent whole markets. They used just one-year

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data pre and post adoption, there may be time-varying effects. Moreover, they used global news reaction and global factors as a proxy to measure integration with the return, which did not cover all aspects of integration.

Overall, there is very limited literature (Infect 3 studies, Dec 2016) on analyzing the impact of IFRS adoption on the integration of capital markets and the evidence provided is conclusive. Therefore, there is a need to further explore this question.

2.6   Development of Hypotheses:

Efficient capital markets are very important for the economic growth of the country, there are a number of studies which empirically found the evidence that capital markets improve the allocation of resources, which contributes to economic growth (Levine & Zervos, 1998; Osada & Saito, 2010). Now its era of globalization, different trade, economic and regional cooperation agreements are evidenced and countries capital markets and real markets are close to each other. Integration of financial markets plays a vital role in the current economic environment due to its effect on the real and financial sectors of the economy (Bekaert & Harvey, 2000). Capital markets integration has many advantages, comprising an overall reduction in the cost of financial assets, diversified investment opportunities, and stable consumption patterns. Further, it provides better risk sharing, a decrease in the cost of intermediation, provides a more efficient allocation of capital resources, and better access to the capital and money markets (Baele et al., 2004; Bekaert et al., 2003; P. B. Henry & Lorentzen, 2003).

There are two theoretical perspectives behind the above-stated benefits of CMI.

i. Risk-sharing perspective. ii. Free capital flow theory.

To explain risk-sharing perspective take the example of segmented markets when there is a restriction on the capital mobility across the border. There are only domestic investors in the market who have to bear all kinds of risks involved. And all the investors are risk averse, they try to minimize their risk. But in the case of segmented markets, they always have to take the extra risk (e-g country-specific risk), which result in the demand for risk premium for holding risky stock. It increases the overall cost of

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capital in the economy (René M Stulz, 1999). In the second scenario that is integrated capital markets, the investor is free to invest in the domestic markets as well as foreign markets. Now in the capital markets, there will be two type of investors, domestic and foreign. Both of them share the risk among them, which result in better risk sharing. Country-specific risks will be mitigated, resulting in the overall decrease in cost of capital (Kose, Prasad, & Terrones, 2009; René M Stulz, 1999).

Second, free capital flow theory (Neoclassical school: capital flows from low-return markets to high return markets or capital flow from where it is abundant to there it is scarce) proposes that by removing the restriction on cross borders investments, the degree of efficiency of capital resources will be enhanced. In other words, there will be better/efficient allocation of resources with the integrated capital markets. Rational behind is very simple, with the removal of barriers the capital should automatically flow from capital abundant to capital-scarce markets because there would be higher returns in capital-scarce markets than that capital abundant markets. Therefore with the better utilization of capital overall economy will be benefited. So with the removal of barriers to cross-border investments, the domestic investments pool will be deeper since there will be both type of investors, domestic as well as foreigners.

Prior research also points out that in the case of international capital mobility there is well-known home bias, which restricts them from investing in foreign countries. The reason behind this is the information asymmetries among the local and foreign investors. Foreign investors have to spend additional amount to obtain and process the information regarding (to remove information asymmetric) the international investment. This additional cost to obtain information of foreign equity market is a significant barrier to international CMI (Brennan & Cao, 1997).

Ackerloff (1970) in his famous study "the market for lemons" theorize that how the Information asymmetric leads to adverse selection issue which causes the market inefficiency. Adverse selection means when there is information asymmetry in the markets, the good products will move from markets, resulting in only bad products. Merton (1987) develops an analytical model in which investors do not have equal information, and hence rational investors prefer assets they are better informed about.

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He posits that incomplete information affects investors' stock trading behavior and consequently the related stock price. In related research, R. H. Gordon and Bovenberg (1996) show analytically that information disadvantages of foreign investors can result in a less foreign investment. This information asymmetry in international capital markets involves two type of costs to foreign investors. First is the direct cost to learn different GAAPs. Second is the interpretation and comparisons of financial statements according to local standards.

Theoretically above mentioned "home bias" and information asymmetry problem (which are barriers to cross-border capital flows) can be mitigated by having common accounting rules. With the adoption of IFRS across the countries, firms' will have increased obligation to transparency and disclosure requirements, which leads to the removal of information asymmetry barrier. IFRS adoption will reduce the information processing cost for international investors, resulting in lower cost of capital and enhanced the confidence of foreign investors in the market (e.g.Botosan & Plumlee, 2002; Diamond & Verrecchia, 1991; Lambert et al., 2007). Eventually, it will lead to increase in the cross-border investment (DeFond et al., 2011; Florou & Pope, 2012; Gwen Yu & Wahid, 2014), and if the foreign investment in the capital markets will be increased, they will be more integrated to each other.

During last fifteen years, many studies try to explore the effects of IFRS adoption on the capital markets by investigating the changes in information asymmetry, market liquidity, the cost of capital, equity valuations, and cross-border investments between pre and post-adoption periods. The motivation behind these studies is that IFRS are capital market-oriented, principal based standards, IFRS will increase worldwide accounting number quality and transparency because of their dependence of on fair value accounting, more disclosure requirements, and better cross-country comparability. All of this lowers the information asymmetry and improve markets efficiency. Daske et al. (2008) focus on IFRS accounting quality and its impact on the capital market. And he found IFRS adoption improves liquidity, lowers cost of capital, and contributes to higher equity valuations. Furthermore, enhanced financial reporting quality can reduce the risk

of estimation and improve overall risk sharing in the economy, resulting in decreased cost of capital for firms (Barry & Brown, 1985).

Empirical studies evidenced that adoption of IFRS results in increased comparability (Ashbaugh & Pincus, 2001; Barth et al., 2012; Cascino & Gassen, 2015; Hong et al., 2014), and Transparency (Horton et al., 2013; J. P. Preiato et al., 2013). IFRS also result in increased market liquidity and a decreased cost of capital (Daske et al., 2008; Li, 2010). IFRS earnings have higher information content (Landsman et al., 2012), and a reduction in insiders' ability to exploit private information (Brochet, Jagolinzer, & Riedl, 2013). IFRS also improves overall financial analysts forecast ability (Byard et al., 2011; Horton et al., 2013; Tan et al., 2011). This will remove the barriers to cross-border investments and lead to improvements in the cross-border investment. Empirical evidence also indicates that foreign institutional investment and foreign mutual fund holding has been increased with the adoption of IFRS (L. Chen et al., 2015; DeFond et al., 2011; Florou & Pope, 2012; Gwen Yu & Wahid, 2014). Foreign individual investment has been increased after adopting IFRS (Brüggemann et al., 2010). IFRS adoption has a positive impact on both equity and debt markets foreign investments (Messod D. Beneish et al., 2015).

In a sum, the evidence about the IFRS adoption shows that accounting harmonization results in enhanced transparency and comparability of financial statements, which reduces information processing costs for foreign investors (such as mutual funds and other institutional investors). Finally, results in increased international investments. On the similar grounds, when there are no barriers to the information and capital markets. In such markets capital will flow freely from low-return markets to high return markets and returns on the capital markets will be more integrated to each other. Due to the importance and associated benefits with the integration of capital markets, an interesting question is that how this IFRS adoption impact the capital markets integration.

Above discussion suggests that IFRS adoption results in a number of benefits to capital markets. Adoption of IFRS results in increased transparency, accounting quality and comparability of financial statements. This removes the barriers to the international investments by reducing estimation risk, information asymmetry, processing cost, home

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bias and etc. This will affect the capital markets by reducing the cost of capital, market liquidity will improve and cross-border investments will increase. Despite the all above significant evidence, it's far from clear whether increased accounting quality, comparability, and cross-border investment will improve the integration of capital markets. Because of a great number of benefits associated with the integration of capital markets, the further question of interest is how this reduced information asymmetry and increased cross-border investment impact the integration of capital markets. Based on the above insights, the objective of the current study is to investigate how IFRS adoption impact on the CMI. Therefore, my first hypothesis of the study is:

H$_1$: The adoption of IFRS have a significant positive impact on the capital markets integration

There are two simple rationales behind this hypothesis, first from risk sharing point of view, IFRS adoption across countries moves foreign stocks into the choice set of investors by having the similar accounting standards investors can learn and interpret financial statement at a lower cost. This will reduce country-specific risks, and there will be increased capital movement across countries that will result in the integration of capital markets. Secondly, from information asymmetry point of view, with global IFRS adoption information asymmetry between different markets will be reduced, which will increase trade in markets across borders, with this increased trade capital markets will be closer to each other.

Hypotheses 1 depends on a strong supposition regarding the compliance and proper enforcement of IFRS. IFRS adoption can effectively empower foreign investors to identify investment opportunities in the cross-border markets with more accuracy if they are properly enforced. Similar accounting standards if enforced and complied effectively will reduce the information asymmetry, information processing cost and enhance the ability of foreign investors to evaluate the performance of the targets. However, this assumption may not be valid. Specifically, there are doubts regarding compliance and proper enforcement of IFRS. Adopting the high-quality accounting standards (i-e IFRS) does not ensure the desired economics outcomes unless effetely enforced. Ball (Ball & AG, 2001) explain that, without effective enforcement mechanisms, higher-quality IFRS

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by themselves do not necessarily produce desirable economic benefits. Other researchers also provide confirming evidence (Burgstahler et al., 2004; Daske et al., 2008; Francis, Khurana, & Pereira, 2005). Therefore in order to achieve the benefits of high-quality accounting standards, there should be strict enforcement. In actual, empirical evidence also suggests the same that positive impact of IFRS is strong in the countries having stricter enforcement credibility and better reporting incentives (Daske et al., 2008; Florou & Pope, 2012; Hong et al., 2014; Gowoon Yu, 2010).

Opponents of IFRS points out several reasons that why IFRS adoption could not secure the desired benefits? First of all are the reporting incentives. As we know financial reporting is moulded by incentives. And incentives are shaped by the institutional structures of the country (Ball, 2001). Therefore, even with the adoption of IFRS, there can be different reporting incentive which is a hurdle in achieving desired effects of IFRS. Second is the enforcement mechanisms. If the enforcement mechanisms are weak, even with the high-quality IFRS, the overall financial reporting quality will decrease (Ball, 2006; Ball et al., 2003). Third, since IFRS are principal based, they increase the managers' decision flexibility, this flexibility can be used as an opportunity for earning management by managers (Barth et al., 2008). So based on of above arguments, the null hypothesis of the study is

H_0: **Adoption of IFRS have no impact on the Integration between the capital markets.**

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CHAPTER 3

3 DATA AND METHODOLOGY

This chapter presents the data and methodology employed. This chapter is organized as follows; Section 3.1 demonstrates data description. Section 3.2 exhibits the Adoption of IFRS by countries. Section 3.3 consists of methodology and research design used in this study.

Rene M Stulz (1981) defined Capital Market Integration (CMI) as "if the returns on the assets issued and traded in the capital markets of different countries are correlated and comparable to each other, those markets are integrated with each other". Similarly, Bekaert and Harvey (1995) defined CMI as "markets are completely integrated if assets with the same risk have identical expected returns irrespective of the market". I used the above definition to measure the CMI, returns on the shares issued in different markets are calculated and then compared to each other to see the harmonization among them.

3.1 Data Description:

The objective of the study is to measure the impact of IFRS adoption on CMI, here IFRS adoption means that "Country's law requires the all or most of the domestic listed companies to prepare their financial statements according to the IFRS". For capital markets, current research used the benchmark index of the stock market to represent the whole stock market since benchmark contains all the main representative companies.

3.1.1 Sample selection:

The sample is defined as "all the countries with capital markets which have a benchmark stock market index" with data available from 2000, (that is three years before earliest adoption in sample countries 2003).

In order to select the sample, list of all possible benchmark indices have been gathered from Thomson Reuter Eikon DataStream to define sample. Then this list was cross

verified with the list from the World Bank about the countries with capital markets and indices.

Total of 72 countries have capital markets and benchmark indices. From this list, fourteen indices were excluded because country indices data are not available for the analysis period, and IFRS adoption year and status of two countries is not clear (Pakistan and Switzerland). 56 countries are included in the sample, 9 are non- adopters and 47 are adopters, as given in Table 1 below.

Among these 56 countries, earliest adoption year is 2003 and latest is 2012. Therefore, the overall period of study spans from 2000-2015, three years before and after IFRS adoption. Overall, the sample includes all the countries which have a benchmark stock market index with data available.

Table 1: Sample Selection

	# Countries
Countries having capital markets with benchmark stock index	72
Less Countries which do not have Stock Index data for the analysis period	16
Total sample countries	56
Countries adopted IFRS between 2003-2014	47
Non-Adopters	09

The sample countries both adopters and non-adopters along with their benchmark indices, adoption year, history of the index, market capitalization to GDP and number of listed companies have been presented in Table 2.

Table 2: Countries with Capital Markets and indices

Country	Adpt. Year	Hist.	Index	MC/GDP		LDC	
				2005	2015	2005	2015
Argentina	2012	27Y	Argentina merval	23.95	9.60	100	93
Australia	2005	24Y	S&P/ASX 200	115.8	88.23	1643	1989
Austria	2005	30Y	ATX - austrian traded index	39.96	25.15	92	79
Belgium	2005	26Y	Bel 20	74.47	91.07	222	117
Brazil	2010	44Y	Brazil bovespa	53.23	27.20	342	345
Canada	2011	34Y	S&P/TSX 60 index	126.75	102.61	3719	3799
Chile	2011	29Y	Chile santiago se general (igpa)	111.00	78.49	245	223
China	NA	24Y	Shanghai se a share	17.58	74.00	1377	2827
Croatia	2006	19Y	Croatia CROBEX	28.44	..	177	186
Czech Rep.	2005	22Y	Prague se PX	25.60	..	23	15
Denmark	2005	27Y	OMX copenhagen (OMXC20)	62.53	..	178	..
Egypt	NA	21Y	Egypt hermes financial	86.99	16.59	744	250
Estonia	2005	20Y	OMX tallinn (OMXT)	35.02		15	..
Finland	2005	29Y	OMS helsinki (OMXH)	96.44	..	134	..
France	2005	29Y	France CAC 40	79.80	85.81	749	490
Germany	2005	51Y	DAX 30 performance	42.01	50.83	648	555
Greece	2005	28Y	Athex composite	58.57	21.52	302	236
Hong Kong	2005	52Y	Hang Seng	581.04	1029.36	1126	1770
Hungary	2005	25Y	Budapest (BUX)	28.82	14.39	44	45
Iceland	2005	23Y	Omx iceland all share	140.61	..	34	..
India	NA	25Y	BSEI100	68.37	72.55	4763	5835
Indonesia	NA	33Y	IDX composite	26.75	41.02	336	521
Ireland	2005	33Y	Ireland se overall (ISEQ)	53.90	44.05	53	43
Israel	2008	29Y	Israel TA 100	86.04	81.55	579	440
Italy	2005	18Y	FTSE MIB index	43.08	..	275	..
Jamaica	2003	29Y	Jamaica se main index	58.69	..	47	59
Japan	NA	66Y	Nikkei 225 stock average	96.16	111.68	2323	3504
Jordan	2004	28Y	Amman se financial market	..	67.84	201	228
Kenya	2003	26Y	Kenya nairobi se (NSE20)	34.07	..	48	64
Kuwait	2003	21Y	Kuwait KIC general	128.37	..	147	..
Lebanon	2003	20Y	Lebanon blom - price index	22.59	23.01	11	10
Luxembourg	2005	20Y	Luxembourg se LUXX - pi	137.22	81.56	39	27
Malaysia	NA	36Y	FTSE bursa malaysia KLCI	125.77	129.19	1015	892
Malta	2005	20Y	Malta se MSE	63.68	42.83	14	23
Mauritius	2003	28Y	Mauritius se SEMDEX - pi	37.02	61.91	30	71
Mexico	2012	28Y	Mexico IPC (NOLSA)	27.60	34.91	150	136
Netherlands	2005	33Y	AEX index (aAEX)	87.37	96.11	237	100
Norway	2005	33Y	Oslo exchange all share	61.89	50.15	191	171
Oman	2003	20Y	Oman muscat securities mkt.	49.12	58.89	235	116
Peru	2014	25Y	S&P/BVL general(IGBVL)	6.29	3.25	193	212
Philippines	2005	30Y	PHILIPPINE SE I(PSEI)	38.61	81.57	235	262
Poland	2005	25Y	Warsaw general index	30.71	28.87	234	872

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Portugal	2005	23Y	Portugal PSI-20	33.94	30.01	51	47
Romania	2009	19Y	Romania BET (l)	15.91	..	59	82
Russia	2012	21Y	Russia RTS index	..	28.79	414	251
Slovakia	2005	23Y	Slovakia SAX 16	3.92	..	7	..
South Africa	2005	21Y	FTSE/ISE all share	213.18	231.71	348	316
South Korea	NA	26Y	Korea se KOSPI 200	79.94	89.04	1616	1948
Spain	2005	29Y	IBEX 35	82.95	65.72	..	3623
Sri Lanka	2012	31Y	Colombo se all share	23.44	25.81	239	294
Sweden	2005	30Y	OMX stockholm 30 (OMXS30)	33.94	51.00	30	46
Thailand	2013	41Y	Bangkok s.e.t.	65.44	87.37	504	639
Tunisia	NA	18Y	Tunisia tunindex	..	20.44	45	78
Turkey	2005	28Y	BIST national 100	31.91	21.97	257	392
United Kingdom	2005	38Y	FTSE 100	121.32	..	2757	1858
United States	NA	52Y	S&P 500 composite	129.84	138.34	5145	4381

Where LDC means Listed Domestic Companies, MC/GDP is the market capitalization to GDP ratio.

3.2 IFRS by Adoption date and status

IFRS adoption status and time of adoption decision are of ultimate importance for the analysis. International Accounting Standard Board (IASB) is developing and promoting the IFRS worldwide. In January 2018, 143 countries require IFRS Standards for all or most domestic public companies (i.e listed companies and financial institutions) in their capital markets. Bhutan will start using IFRS in 2021. Figure 1 shows the countries who require IFRS Standards for domestic listed companies on the world map. It includes all 31 member states of the European Union (EU) and the European Economic Area (EEA), where all companies whose securities trade in regulated stock markets are required to use IFRS, as per EU agreement[4].

Figure 1: Countries required IFRS
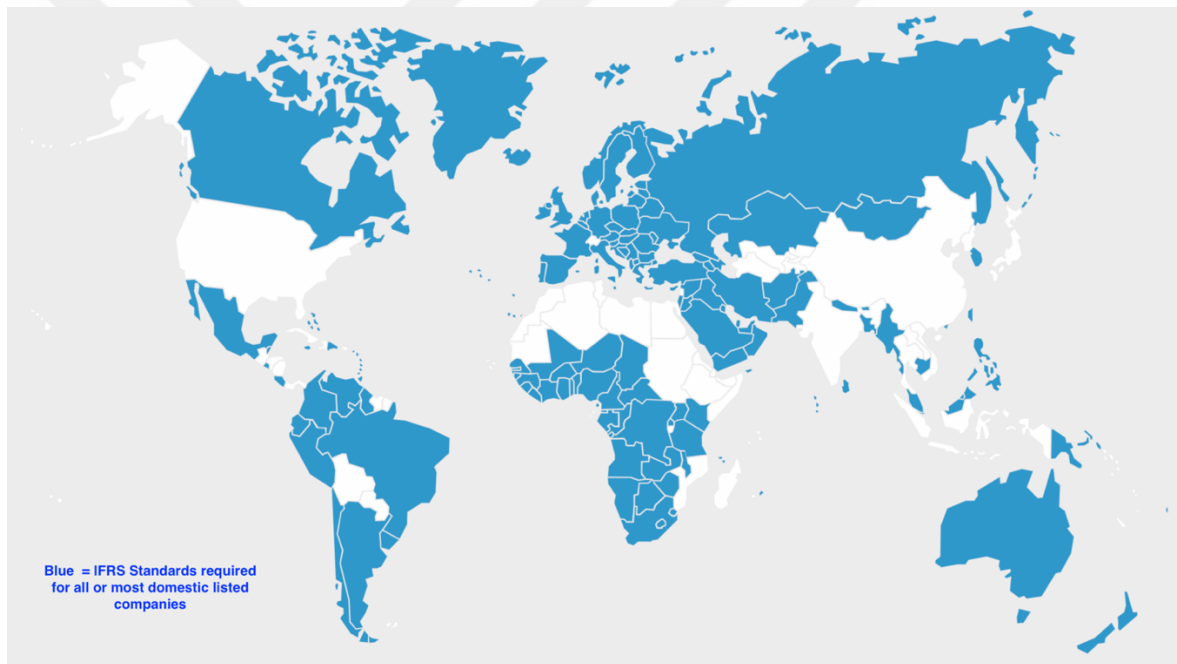
Source: IFRS website.

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[4] (IASB website accessed 23 March 2018, http://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/#analysis).

Adoption of IFRS is a country level decision. Countries followed different mechanisms to converge their national accounting standards towards IFRS Standards. Countries' approach to IFRS is also very different. Some countries replaced their national accounting standards (local GAAPs) with IFRS Standards word by word (without any change), including Australia, Bangladesh, Hong Kong, Kenya New Zealand and Korea (South). Some others allowed or permitted IFRS for certain type of companies only as in the case of Japan and Switzerland. Similarly, Argentina and Mexico required IFRS for all listed companies except financial institution while Uzbekistan required IFRS only for Financial Institutions (not for other listed companies). Other countries adopted IFRS as a requirement of membership of certain trade unions like EU and EEA. There are also countries that are trying to harmonize their national GAAP with IFRS Standards. Finally, some countries neither required nor permitted the use of IFRS Standards to any domestic listed companies, including Egypt, India, and US (Pacter, 2016).

Given the above variety of IFRS adoption decision approaches, it is important to define what is meant by IFRS adoption for the current study. I am investigating the capital markets integration and hence determination of each countries' laws and regulations regarding the adoption of accounting standards for the listed companies on the stock exchange is important. In the current research, a country is classified as "IFRS adopter" if its regulations require all or most of its domestic listed companies to apply IFRS for the preparation of financial statements. On the other hand, if the country's law does not require the application of IFRS Standards for all or most domestic listed companies it is classified as "non-adopter" of IFRS.

To test the research hypotheses, identification of exact time or year of IFRS adoption plays a fundamental role. Similar to IFRS adoption status, country's timing of IFRS adoption is also very complex and multifarious. IFRS adoption by a country is a long process and each country's regulatory and accounting bodies have to consider a number of factors such as expected costs, benefits, and application issues before the final decision regarding the IFRS adoption. Therefore, countries go through different timelines according to their regulations in arriving at an IFRS adoption decision. Some countries started projects to converge their local GAAP to IFRS over time; while others

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allowed IFRS for certain sectors/companies on a voluntary adoption basis before it is mandatorily required for all the companies. There are different dates relating to the different steps taken towards IFRS adoption decision:

- IFRS adoption decision date,
- Date when IFRS is permitted/allowed on voluntary adoption basis for some companies,
- Date when IFRS is required for some companies/sectors,
- Date when IFRS required for all the listed companies,
- Date when some specific IFRS are made effective, and
- Date of IFRS implementation.

Above decision, dates differ from country to country and moreover, data for all the above decisions are not available for all the sample countries. Since, my research question is about the impact of IFRS adoption on CMI, the adoption year for the current study is the year in which all or most of the domestic listed companies are required to adopt IFRS Standards (Ramanna & Sletten, 2014).

There are no single sources where the data about all above decisions and dates are available. It was a challenge to develop a database for the country-year adoption. Thus, data for the IFRS adoption status and year of adoption (country-year) have been collected and cross verified from four different sources:

- Jurisdiction profiles from the official website[5] of IFRS,
- Reports on Observance of Standards and Codes (ROSC reports) of each country by the World Bank,
- The IAS Plus website[6], operated by Deloitte Global Services Limited, and
- PwC 2016 report about the IFRS adoption.

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[5] IFRS website; https://www.ifrs.org/use-around-the-world/use-of-ifrs-standards-by-jurisdiction/
[6] IAS Plus website; https://www.iasplus.com/en/resources/ifrs-topics/use-of-ifrs

Brief introduction of above sources is given below.

IFRS Jurisdiction Profiles: As a result of IFRS Foundation Trustees meeting in February 2012, a project has been launched to provide the information about the level of IFRS standards application around the world. So, in late 2012, IFRS foundation started developing the profiles of each country about the IFRS standards applicability status. Information from the various sources has been used for preparing these jurisdiction profiles, including a filling of survey questionnaire from the standard setters and relevant bodies of each country. According to 2017 report[7], 150 jurisdictional profiles were completed and updated on the webpage, including all of the G20 jurisdictions. Each profile contains the specific information about a country, including the relevant accounting bodies and authorities, the extent of IFRS adoption by the companies: such as type of companies that have adopted IFRS, adoption by listed or unlisted financial institutions, Are IFRS required or permitted by law, are IFRS required for Consolidated financial statements only or also for separate company statements, and information about the adoption of SME IFRS.

In 1999, the World Bank and International Monetary Fund (IMF) initiated the Report on the Observance of Standards and Codes (ROSC) to strengthen the international financial structure. These reports provide a comprehensive review of internationally recognized standards from 12 policy areas, including Accounting and Auditing; Corporate Governance; and Insolvency and creditors rights. The ROSC reports are available for 139 countries, but some of the reports don't have the updated data so cannot be relied on for more current information.

My next source for IFRS adoption information is IAS Plus website administrated by the Deloitte Global Services. IAS Plus website also includes an extensive database about the use of International Financial Reporting Standards (IFRS) by jurisdiction. The database provides info on a total of 175 countries' IFRS adoption. However, many countries information is outdated.

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[7] Pocket Guide to IFRS® Standards: the global financial reporting language 2017

PricewaterhouseCoopers LLP also provides a report containing the information of IFRS adoption country. 2016 report include the profiles of about 150 countries. Each country's profile has the concise information about following questions: IFRS required or permitted for listed companies? Which Version of IFRS is used? Are subsidiaries of foreign companies or foreign companies listed on local exchanges subject to different rules? Is IFRS or IFRS for SMEs required, permitted or prohibited for statutory filings? Any Plans for converging to IFRS. Type of tax regime of the country and other useful websites of the country[8].

Data for the adoption status and year of adoption is not directly given in any of the above sources. To extract the year of IFRS adoption and the status of IFRS adoption, a systematic approach has been applied to gathers the required data to minimize the chances of error. Moreover, data are cross verified within these sources to avoid errors.

In the first step, IFRS jurisdiction profiles and ROSC reports of each country have been downloaded from the IFRS website and IMF official website respectively. Pwc IFRS by the country report is also downloaded from PricewaterhouseCoopers official website.

In the second step, profiles and reports of each country are examined for IFRS adoption status and requirement dates; and a database is constructed.

Finally, the database about the IFRS adoption status and year of adoption has been cross verified with ROSC reports, PwC report and IAS Plus website.

If the year or decision of adoption is found missing in the jurisdiction profile (by IFRS), ROSC reports are examined for data. If the data is controversial on different sources, latest updated data is given preference. Sometimes respective country accounting and law bodies websites have also been visited to verify the controversial data.

Figure number 2, and Table number 2 provides the information about the country and its year of adoption. Among the sample countries 28 countries adopted IFRS in 2005 and 9

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[8] https://www.pwc.fr/fr/assets/files/pdf/2017/12/ifrs-pocket-guide-2016.pdf

countries are still non-adopters, the remaining countries required the use of IFRS in different years.

Figure 2: Countries maps with respect to IFRS adoption decision

Legend:
- 0 (9)
- 2003 (6)
- 2004 (1)
- 2005 (28)
- 2006 (1)
- 2008 (1)
- 2009 (1)
- 2010 (2)
- 2011 (1)
- 2012 (4)
- 2013 (1)
- 2014 (1)
- undefined (209)
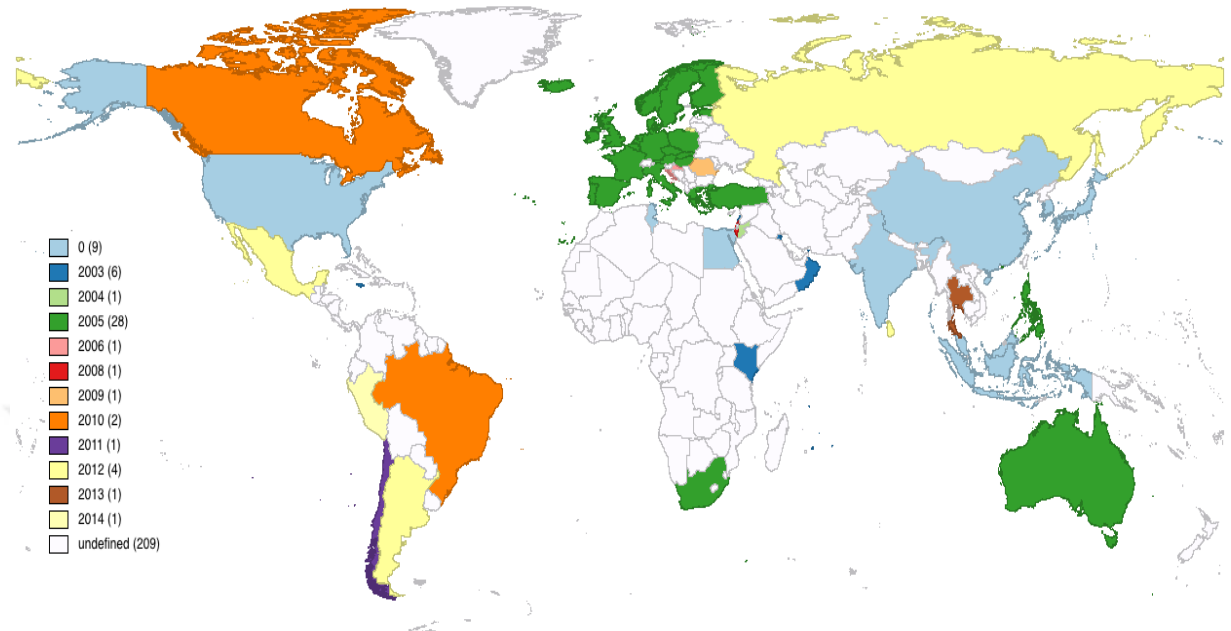
Source: Author compilation using Geoda map

3.3 Methodology

3.3.1 Control variables:

The sample of the study has a range of countries from developed to developing economies. These countries are from different legal setup, business, and economic environment. The companies listed on the capital markets may face different types of regulations and risks. Moreover, previous literature also identified different macroeconomic variables which affect the integration of capital markets. Therefore, following control variables are used to account for the differences in the economy and capital market structure.

- Economic growth
- Inflation
- Market capitalization to GDP
- Number of listed companies
- Interest rates (real)
- Foreign Direct investments (% GDP)
- Government debts (% GDP)

Apart from above macroeconomic variables, changes in legal and risk environment of the country may also affect the integration of capital markets. Following are used to control for the legal and risk environment.

- Rule of Law (a proxy for legal barriers) from the world governance indicators.
- Chin-Ito Financial markets openness index
- Economic Freedom Index from the Heritage Foundation.
- The volatility of Foreign Exchange rates to foreign exchange rate to account for currency risk.

Economic growth is measured with the proxy of the Annual percentage of GDP growth rate. The data of GDP growth rate (annual %) has been downloaded from the World Bank national accounts data, and OECD National Accounts data files. Gross Domestic Product (GDP) is defined as the aggregate of gross value of products created by all local producers in the country plus any taxes and minus any subsidies not included in the value of the products. GDP rate is calculated by the World Bank

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at the market prices in local currency, without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources[9].

Inflation is measured with annual consumer prices percentage. The consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The data were obtained from the World Bank Databank[10].

The market capitalization of listed domestic companies as a percentage of GDP is used as a proxy for market development. Market capitalization (also known as market value) is defined as the total market value of shares outstanding for domestic listed companies (share price x total number of shares). Data has been gathered from World Bank and World Federation of Exchanges databases. In calculating market capitalization Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded.

For the market size, a total number of listed companies are taken as a proxy. It represents the domestic and foreign companies which are listed on the stock exchange at the end of a year. However, investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies, such as holding companies and investment companies, regardless of their legal status, are excluded while calculating the number of total listed companies. Different classes of shares of the company are counted as one. Data are obtained from the World Bank and the World Federation of Exchanges databases.

Real interest rates also affect the capital markets. It is defined as "the lending interest rate adjusted for inflation as measured by the GDP deflator". Different terms and conditions for interest rates in countries hinder their comparability. The data are downloaded from the World Bank database.

Foreign direct investment (FDI) represents the total direct capital investment flows to a certain country. It includes equity investment, reinvestment of earnings, and other capital investment. Direct investment means cross-border investment by a foreign

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[9],[10] World Bank DataBank; http://databank.worldbank.org/data/home.aspx

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resident in country's company having control of strong influence on the company's management. Criteria for direct investment is the 10 % or more ownership of the ordinary shares. FDI is divided by the GDP to have countries comparison. Data has been downloaded from world bank databank[11].

Central government debt represents the fixed term outstanding obligation of government to the others on a particular date (year-end). It includes both domestic as well as foreign liabilities such as loans, currency and money deposits, and securities other than shares. It is calculated by deducting the equity and financial derivatives held by the government from the liabilities. It represents the amount at a certain date, usually the last day of the fiscal year. Central government debts are expressed as a percentage of GDP as well. Data has been downloaded from the world bank database.

Rule of Law is used as a proxy for legal risks. Data are obtained from the Worldwide Governance Indicators (WGI) dataset. The WGI dataset was initiated by Daniel Kaufmann and Aart Kraay in 1999. It represents the views on the quality of governance provided by a large number of institutions, residents, businesses and expert survey respondents in both developed and developing economies. Rule of law is defined as the extent to which agents have certainty and accept the rules of society. It reflects the factors such as quality of contract execution, property rights, the police, and the courts, as well as the likelihood of crime and violence. The estimate for a country provides a country's score on the aggregate indicator, in units of a standard normal distribution, ranging from approximately -2.5 to 2.5 (WGI website)[12].

The Chinn-Ito index (KAOPEN) is used to measure the degree of countries capital account openness. KAOPEN or Chinn-Ito index is widely used in the finance literature, it was started by Chinn and Ito, so it is named after them (Chinn & Ito, 2006). It is developed by coding the restrictions on the cross-border transactions into binary dummy variables. Data about cross-border transactions are taken from the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions

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[11] World bank DataBank; http://databank.worldbank.org/data/home.aspx
[12] WGI website address; http://info.worldbank.org/governance/wgi/index.aspx#home

(AREAER). Chinn-Ito index (KAOPEN) data are obtained from the Chinn-Ito website[13].

The Economic Freedom Index (EFI) developed by The Wall Street Journal and The Heritage Foundation is used to control for the differences in economic access among the countries. Economic freedom is the right to control one self's work, to get labor and property without interference. All in all, 12 qualitative and quantitative factors are used to evaluate a country's overall economic freedom score where each factor is given equal weight. These factors are further grouped into four broad categories; the rule of law, government size, regulatory efficiency, and the openness of markets.

Foreign exchange (FX) rate volatility is used to account for the currency fluctuation risk. It is the risk associated with unanticipated movements in the exchange rate. The volatility of exchange rates refers to the extent of uncertainty in the movements of a currency exchange rate. High volatility represents higher fluctuations in the price of the currency over a short time period in either direction.; while lower volatility means that an exchange rate is fairly stable over the same period. Generally, higher volatilities are seemed riskier.

FX volatility is calculated with the following method. The first difference of natural log of the monthly exchange rate (end of the month) of each country with US dollar is calculated (Clark, Tamirisa, Wei, Sadikov, & Zeng, 2004).

$$\partial_t = lnFX_t - lnFX_{t-1} \qquad \textit{Equation 1}$$

Then to calculate the short-term volatility standard deviation is measured by taking the mean of one year.

$$v_t = \sqrt{\frac{\Sigma(\partial_t - \bar{\partial})}{n-1}} \qquad \textit{Equation 2}$$

where v_t represents the volatility of exchange rate at the time t , FX_t= US dollar exchange rate at time t, ∂_t= 1st difference of foreign exchange rate at time t and $\bar{\partial}$ is the mean value of 1st difference of exchange rate.

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[13] Chin ITO website; http://web.pdx.edu/~ito/Chinn-Ito_website.htm

3.3.2 Data Sources:

Data have been gathered from diverse sources for the current study, following are the details of data and sources used for it.

Data about the IFRS adoption status are obtained from IFRS website and cross verified from Deloitte IAS Plus, PwC reports and SSOC reports of World Bank.

Monthly and weekly stock prices and spot exchange rates are downloaded from the Thomson Reuters Eikon DataStream.

Control variables such as Economic growth, Inflation rate, Market capitalization to GDP, Number of listed companies, Interest rates (real), Foreign Direct investments and Government debts are obtained from the World Bank databank.

Economic freedom index is downloaded from the Heritage Foundation website.

Chin-Ito openness indices are taken from the Chin-Ito website.

Rule of law data is downloaded from the World Governance Indicator (WGI) index website.

Development level data are obtained from IMF website.

3.3.3 Missing data:

Some control variables had missing data, therefore I used the interpolation technique to fill the missing values. This technique interpolates the missing values within the series from the non-missing values. Specifically, I used linear interpolation technique, where a linear approximation based on the previous non-missing value and the next non-missing value is calculated, with the following formula:

$$mv_{Lin} = (1 - \partial)v_{i-1} + \partial v_{i+1} \qquad \textit{Equation 3}$$

where v_{i-1} is the previous non-missing value, v_{i+1} is the next non-missing value, and ∂ is the relative position of the missing value divided by the total number of missing values in a row.

3.3.4 Frequency conversion:

Most of the control variables data are available on annual basis and stock market returns have been used for the current study on monthly basis. Data frequency is converted from low to high frequency by using the Chow and Lin (1971) interpolation algorithm. It is a regression based technique that finds values of a series

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"y" by relating one or more higher-frequency indicator series "x" to a lower-frequency benchmark series. The algorithm uses generalized least squares to estimate the covariance matrix assuming that the errors follow an AR(1) process through the following equation.

$$y(t) = x(t)\beta + \alpha(t) \qquad\qquad \textit{Equation 4}$$

where β is coefficient vector and $\alpha(t)$ is a random variable with zero mean and v covariance matrix.

I used Eviews 9.5 for frequency conversion that interpolates the missing values in the state space framework.

$$\alpha(t) = \rho\alpha(t-1) + \epsilon(t) \qquad\qquad \textit{Equation 5}$$

where $\epsilon(t)\sim N(0,\sigma^2)$ and $|\rho| < 1$. The parameters ρ and α are estimated via maximum likelihood and the Kalman filter, and the interpolated series is subsequently calculated with Kalman smoothing.

<center>**3.4 Research Design:**</center>

IFRS have been adopted by countries in different years, therefore to find the incremental impact of IFRS adoption on the capital market integration, I have used the staggered adoption dates. To capture the incremental impact of IFRS adoption, sample countries are divided into two groups based on their adoption status. Countries which adopted the IFRS are named as "adopters" (treatment group) and countries which have not adopted the IFRS are termed as the "Non-Adopters" (control group). Then they are further classified into subgroups.

3.4.1 Classification of countries:

In order to apply the integration measurement techniques, first of all, the countries are classified into treatment and control groups so that the results are treatment group (IFRS countries) can be compared with control groups to capture the incremental impact of IFRS adoption. Staggered IFRS adoption dates are used to define countries treatment and control groups. Therefore, each country's IFRS adoption status is examined for the year. The countries which adopted the IFRS in particular year are classified as treatment group for a particular year and the rest of the countries are polled as a control group. Then, from the poll of control group countries, a control group is matched with the treatment group on the criteria of stock market development (market capitalization to GDP ratio) and income level of the country.

However, during the control group matching, if a country adopted IFRS in the post-adoption period it is excluded from the control group pool. The countries are classified into four groups based on their adoption years (adoption year means when IFRS are required by the companies).

Table 3: provides the details of classification of each group countries. Treatment and control groups are given along with their market capitalization to GDP ratio and income levels.

Group A includes seven (7) countries (Jamaica, Kenya, Kuwait, Lebanon, Mauritius, Oman, Jordan) as a treatment group which adopted IFRS in 2003-2004, for this group Control group are the seven (7) countries having similar market capitalization to GDP ratio and have not adopted IFRS in the Post-Adoption period (India, Argentina, US, Sri Lanka, Indonesia, Tunisia, Thailand).

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Group B are the countries which adopted IFRS during 2005-2006, treatment group includes twenty-nine countries (Australia, Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Philippines, Poland, Portugal, Slovakia, South Africa, Spain, Sweden, Turkey and UK) among these 23 countries also have EU membership. Control group is matched according to market capitalization to GDP ratio from the non-adopters' pool and includes 15 countries (Argentina, Mexico, Chile, Russia, Sri Lanka, Thailand, China, India, Indonesia, Japan, Malaysia, Peru, S. Korea, Tunisia, US)

Group C includes the countries (Brazil, Canada, Chile) which adopted IFRS between 2010-2011 and also Israel and Romania which adopted IFSR in 2008 and 2009 respectively. Matched control sample includes India, Japan, US, Malaysia, and South Korea which have not adopted IFRS.

Group D includes Argentina, Mexico, Russia, Sri Lanka, Thailand and Peru, these adopted IFRS between 2012-2013. Matched control sample includes Tunisia, Indonesia, Japan, India, China, and South Korea which have not adopted IFRS.

Table 3: Classification of Countries

Group-A (2003-2004)			Group-B (2005-2006)						Group-C (2010-2011)			Group-D (2012-2013)		
Countries	MC/GDP	I-L	Countries	MC/GDP	I-L	Countries	MC/GDP	I-L	Countries	MC/GDP	I-L	Countries	MC/GDP	I-L
Treatment group			**Treatment group**						**Treatment group**			**Treatment group**		
Jamaica	66.39	UM	Australia	115.89	LM	Slovakia	3.92	UM	Brazil	69.97	H	Argentina	9.62	UM
Kenya	28.06	H	Austria	39.96	UM	South Africa	213.18	H	Canada	134.57	UM	Mexico	41.68	H
Kuwait	127.31	H	Belgium	54.40	H	Spain	82.95	UM	Chile	156.40	LM	Russia	33.55	LM
Lebanon	7.06	H	Croatia	57.49	LM	Sweden	91.19	H	Israel	97.43	H	Sri Lanka	25.31	UM
Mauritius	17.18	LM	Czech Rep.	15.57	H	Turkey	31.91	UM	Romania	8.45	UM	Thailand	84.27	LM
Oman	26.92	H	Denmark	55.77	UM	UK	121.32	UM	**Control group**			Peru	40.24	
Jordan	116.80	UM	Estonia	35.02	H	**Control group**			India	98.50	H	**Control group**		
Control group			Finland	96.44	H	Argentina	23.95	UM	Japan	67.15	LM	Tunisia	18.60	H
India	46.55	H	France	79.80	H	Mexico	27.60	H	US	115.50	H	Indonesia	37.99	H
Argentina	27.43	UM	Germany	42.01	H	Chile	111.00	LM	Malaysia	160.26	LM	Japan	88.12	LM
US	123.94	H	Greece	58.57	H	Russia	53.97	LM	South Korea	99.76	LM	India	61.34	H
Sri Lanka	14.36	UM	Hong Kong	581.04	UM	Sri Lanka	23.44	UM				China	41.11	LM
Indonesia	21.87	H	Hungary	28.82	H	Thailand	65.44	LM				S Korea	94.56	LM
Tunisia	24.18	H	Iceland	140.61	L	China	17.58	LM						
Thailand	78.16	LM	Ireland	53.90	LM	India	68.37	H						
			Italy	43.08	H	Indonesia	26.75	H						
			Luxembourg	137.22	H	Japan	96.16	LM						
			Malta	63.68	H	Malaysia	125.77	LM						
			Netherlands	87.37	LM	Peru	31.74							
			Norway	61.89	H	S Korea	79.94	LM						
			Philippines	38.61	LM	Tunisia	8.35	H						
			Poland	30.71	L	US	129.84	H						
			Portugal	33.94	H									

Source: Author compilation based on the data from Thomson Reuters Eikon and world bank data bank.

Note 1: MC/GDP represents the Market capitalization to GDP ratio and I-L = income level of the country.

Note 2: Groups are made on the bases of IFRS adoption status and year. All the countries which have not adopted IFRS are included in the control group pool. Then countries for control groups are matched based on the MC/GDP and income levels of the treatment group. If a country adopts IFRS in the post-adoption period, it is not included in the pool of control group.

Then for each point in time, integration between stock markets of treatment and control groups is measured three years before and three years after IFRS adoption by using the price based measures of integration and compared with the control group.
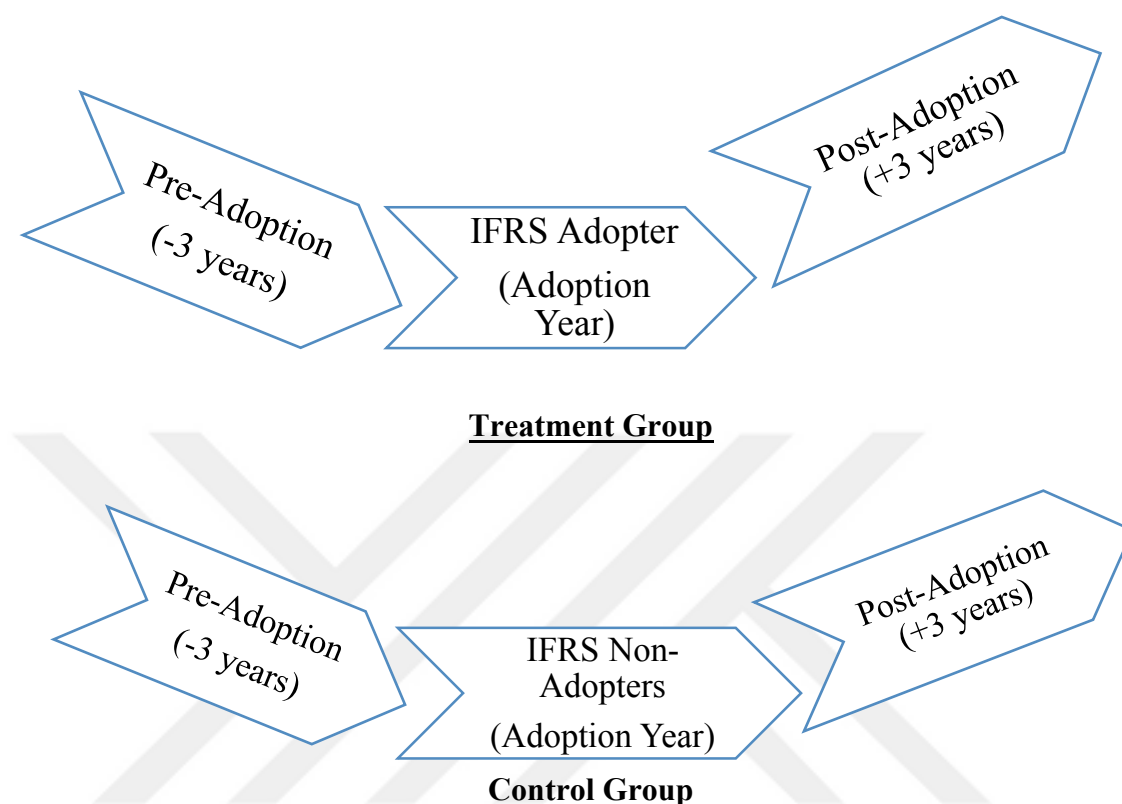
Figure 3: Flow of research design

Stock market index data from Thomason Reuters Eikon data stream is prices data. Hence, first stock returns are calculated by taking the natural logarithm of one lag difference of stock prices with the following formula:

$$R_{it} = ln\ (P_{it}/P_{it-1}) \qquad\qquad Equation\ 6$$

Where R_{it} is the stock return of i's country for the time t, ln is the natural logarithm operator and P represents the stock price of i's country for the time t.

3.5   Measures of Capital Market Integration:

The literature on the financial integration measurement has been classified into the following two general groups (Adam et al., 2002; Baele et al., 2004) (i) Price-based measures and (ii) Quantity based measures.

Price-based measures: According to the law of one price, assets with identical cash flows and risk characteristics should have the same price, independent of the location

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where they are traded. Hence, in price based measures, the returns (cash flows) of comparable assets (same risk level) in different international markets are calculated and analysed (Adam et al., 2002). These measures account for the discrepancies and correlations in asset prices across different capital markets.

Quantity based measures: In quantity based measures, national savings, and investments are compared based on correlations and common patterns. These measures are based on the idea of Feldstein and Horioka (1979), who opine that in a perfectly mobile assets market, there should not be a direct or indirect relationship between national savings and investment patterns. The rationale behind the idea is that in integrated markets, domestic investments represent a pool of international savings at a common interest rate.

In the current study, price-based measures have been used due to its advantage over quantity based measures. Prices and returns data are more easily available and relatively reliable compared to savings and investment data in most of my sample countries; and these measures have a precise interpretation with reference to the law of one price (Adam et al., 2002).

From prices data, integration of capital markets can be assessed in a number of alternative ways. Common methods to measure CMI include cointegration analysis, correlation coefficient, conditional correlations (GARCH model), beta and sigma convergence. Each of above approaches measures a specific aspect of CMI given the availability of data. For instance, cointegration analysis measures the long run equilibrium relationship between the stock prices. However, data availability and different structural breaks cause issues in long run relationship. For the short run, GARCH model accounts for the non-linearity issues in stock market volatility but there may be many forms of non-linearity. Beta and Sigma convergence approach for CMI are free from the direction of causality, they allow to measure an overall integration of capital markets for the relatively short run time period (compared to cointegration) and heterogeneous sample, as is the case in the current study. Following are the details of the methodologies that are used in this study.

3.5.1 Correlation coefficient:

One widely applied approach to assess the global capital market integration in finance literature is the correlation between the stock indices. Bekaert and Harvey

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(1995) are the first ones to use this approach. Later on F. Cai and Wong (2010); and Chambet and Gibson (2008) also used correlation coefficient to examine the capital market integration. In this approach, Pearson's correlation coefficients are calculated by using the monthly returns data for the Pre and Post-adoption periods. Then, these coefficients are compared to analyse increase/decrease in correlation from period to period, to represent the increase or decrease in correlation. Correlation coefficient will give us an initial idea about the relationship, however, it would not provide us the details of the time-varying relationship among the series.

3.5.2   Beta (β) convergence:

Beta convergence measures the speed with which differences in stock returns are eliminated for an individual stock against a selected base (benchmark stock return). A negative β coefficient indicates that convergence is taking place and size of the beta coefficient indicates the speed of convergence. Beta (β) convergence, is measured by the following regression with panel data:

$$\Delta R_{i,t} = a_i + \beta R_{i,t-1} + \sum_{l=1}^{L} \gamma \Delta R_{i,t-l} + \gamma C_{i,t} + \varepsilon_{i,t} \qquad\qquad \textit{Equation 7}$$

Where $\Delta R_{i,t}$ denotes a spread (difference) in returns on market index between country i and a benchmark market at time t; C represent control variables, and l represents lag. γ measures lagging effects from $\Delta R_{i,t-l,}$ in previous periods.

The appropriate lag period is determined by Campbell and Perron (1991) top-down approach. Starting with a lag=5, if the absolute value of the t-statistic for γ5 is less than 1.96 reset lag=4 and re-estimate the equation. I have repeated this procedure until the t-statistic of the coefficient with the longest lag is greater than 1.96.

If stock markets are perfectly integrated, this spread (Difference) between benchmark market and country i should be zero as long as stocks traded have the same risks and maturity structures following the law of one price ("mean reversion"). Therefore, a negative β coefficient indicates mean reversion is taking place across the markets, and an absolute value of the coefficient represents the speed of convergence at which the difference is dissolved. The values of β coefficient can fall between 0 to –2. If β = –1, perfect convergence occurs while β = 0 or β = –2, no convergence will be observed. The value of β from 0 to –1 indicates a monotonous

convergence, while a value between –1 and –2 represents an oscillating convergence. The closer the β coefficient to –1, the faster the rate of convergence.

From beta convergence half-life (H-L) has been calculated and it represents the distress to the return differential between any two markets. Actually, it is a period during which the distress in series declines to one half of its initial value. Lower H-L values correspond to faster beta-convergence. The half-life is calculated as *H-L* = ln (0.5)/ln *(|β + 1|)* and expressed in a number of days.

3.5.3 Sigma (σ) convergence:

On the other hand, sigma (σ) convergence employs the cross-sectional standard deviation of returns across countries at each time. Sigma-convergence increases as the sigma value fall to zero. If the cross-sectional dispersion converges to zero, perfect integration is achieved. It is calculated as follows:

$$\sigma_t = [\frac{1}{n-1}\sum(R_{i,t} - \overline{R_t})^2]^{\frac{1}{2}} \qquad \textit{Equation 8}$$

Where n represents a number of the countries, $R_{i,t}$ represents a return on the stock index in country i at time t, and (R_t) identifies an average return in all markets at time t. In theory, perfect convergence is realized when sigma stays at zero.

To separate the incremental effect of IFRS adoption on the capital markets convergence following difference in difference model has been utilized[14]. If the treatment group (adopters) is represented by "T" and control group (non-adopters) by "C". The following equation will give the incremental effect of IFRS adoption.

$$\sigma = \beta_0 + \delta_0 d_2 + \beta_1 dT + \delta_1 d2.dT + \mu \qquad \textit{Equation 9}$$

Where σ is the sigma convergence, dT is dummy variable, its value is "1" if it is treatment group "0" otherwise. d2 is dummy variable for the time, 2 represents post-IFRS adoption period. μ represents the other factors. δ_1 will give us the effect of IFRS adoption on the sigma convergence, it is also called the difference-in-difference estimator. δ_1 can be estimated in the following way as well.

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[14] Details of Difference in Difference method is given in Appendix A.

$$\delta_1 = \left(\overline{\sigma}_{2,T} - \overline{\sigma}_{2,C}\right) - \left(\overline{\sigma}_{1,T} - \overline{\sigma}_{1,C}\right) \qquad \qquad \textit{Equation 10}$$

where bar represents the averages and the first subscript denotes the time and second denotes the group.

Note that the two convergence methods capture different aspects of market integration: beta convergence measures the speed with which difference in returns are eliminated in a fixed time framework, while sigma convergence focuses whether markets are moving toward integration over time or not. Moreover, the presence of beta convergence does not imply that there is sigma convergence, there can be the case with beta convergence and sigma divergence(Quah, 1993; Sala-i-Martin, 1996). Therefore, both aspects of convergence are measured to analyse the integration of capital markets.

The concept of beta and sigma convergence has been adopted from the growth economics literature and used by a number of studies to measure the integration of markets, especially in the context of capital market integration in the European Union (EU). Adam et al. (2002) apply beta and sigma convergence to 10-year bond yields and interbank rates, mortgage rates and corporate loans rates of the EU countries and found that integration between European countries has been increasing after 1999. Babetskaia-Kukharchuk, Babetskii, and Podpiera (2008) assess the capital market integration of the new EU member states i.e Czech Republic and Hungary, by using above indicators and found positive evidence. Apart from EU some other studies about regional market integration have also used methodologies such as Espinoza, Williams, and Prasad (2010) used it to measure interest rate convergence in the Gulf Cooperation Council (GCC). Yabara (2012) measure the capital market integration of East African countries. Babecký, Komárek, and Komárková (2013) have analysed the convergence of Chinese and Russian Stock markets.

3.5.4 Robustness check:

For robustness, I have verified the results by varying the frequency of data to weekly, trying different bases, changing the time period window and classifying all countries in a single group of adopters' vs non-adopters.

CHAPTER IV

4   EMPIRICAL ANALYSIS

This chapter presents the empirical analysis and discussions. This chapter is organized as follows; Section 4.1 provides the descriptive statistics. Section 4.2 represents the graphs of the returns. Section 4.3 describes Pearson correlation coefficient results. Section 4.4 provides the results of beta convergence and section 4.5 provides the results of sigma convergence.

4.1   Descriptive Statistic:

Table 4 describes the summary of the descriptive statistic of the stock returns for the Group A. Panel A provides details of adopters (Treatment group) and Panel B provides the detailed descriptive of non-adopters' countries (control group), for the overall, pre and post periods, respectively. In general, the average returns of both treatment and control groups are positive. The overall findings show that the stock returns of both adopters and non-adopters are mixed, some stock markets have higher returns while others have lower. Comparing the pre and post period, overall mean returns in the post-IFRS adoption are higher than pre-IFRS adoption for both groups, except Mauritius, Argentina, and Tunisia.   The standard deviation or unconditional volatilities are higher in the adopter's group in comparison to non-adopters and also are higher in post-IFRS adoption period than the pre. Overall, the findings imply that adopters' countries markets are riskier and post-adoption period is riskier with high returns. All the stock markets have kurtosis greater than 3 for all periods, indicating that all index return have leptokurtic distribution. The Jarque-Bera test results indicate that the null hypothesis of normality for both groups has been rejected.

The detailed inspection of Tables 4 reveals that in adopters' countries average returns of Jamaica are higher for all periods and it jumps to 11.85% in the post-adoption period from 0.94% in the pre-adoption. Similarly, it has higher volatility in the adopter's group, and it raised to 31.71% in the post-adoption period from 2.99% in the pre-adoption. In the non-adopters group, Thailand has highest mean returns, but overall returns are lower in post-adoption period for all the non-adopters compared to

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pre-adoption except Argentina. Argentina also has the highest volatility in the group but it decreased in the post-adoption period. All the stock markets have positively skewed returns in all the periods. In the adopters, Omani market has the lowest returns in the pre-adoption while Mauritius have lowest returns in post-adoption period. In the non-adopter group, India has the lowest returns in the pre-adoption period while Tunisia has the lowest returns in the post-adoption period.

Table 4: Descriptive statistics of returns (Group A)

Panel A: Adopters

Country	Mean			Std. Dev.			Maximum			Minimum			Skewness			Kurtosis			Jarque-Bera		
	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post
JAM	4.96	0.94	11.85	20.10	2.99	31.71	103.31	9.52	103.31	-0.99	-0.90	-0.99	4.46	2.43	2.44	21.29	7.04	7.04	1655.3***	59.9***	60.3***
KEN	1.96	0.87	3.84	10.34	2.88	16.46	97.94	9.31	97.94	-0.99	-0.91	-0.99	8.50	2.43	5.41	79.11	7.04	31.42	24329.2***	59.9***	1386.9***
KUW	0.98	0.94	1.42	3.04	3.01	3.64	9.82	9.37	9.82	-0.90	-0.90	-0.90	2.38	2.43	1.76	6.78	7.01	4.19	147.8***	59.4***	20.7***
LEB	1.03	0.86	0.86	3.24	2.92	3.21	13.77	9.77	13.77	-0.91	-0.91	-0.90	2.50	2.44	3.14	7.64	7.16	11.36	185.9***	61.7***	163.9***
MAU	0.68	1.32	0.03	2.49	3.42	0.05	9.24	9.04	0.17	-0.90	-0.90	-0.05	2.96	1.75	0.84	9.92	4.14	3.94	331.8***	20.3***	5.5***
OMN	1.82	0.41	3.47	11.29	2.06	18.12	108.42	8.81	108.42	-0.99	-0.90	-0.99	8.92	3.77	5.62	84.47	15.58	33.06	27822.8***	323.1***	1545.1***
JOR	1.15	0.67	1.41	3.19	2.55	3.50	9.79	9.03	9.73	-0.99	-0.90	-0.91	2.10	2.96	1.76	5.51	9.90	4.21	95.8***	124.0***	20.8***
Panel B: Non Adopters																					
ARG	1.38	2.93	0.01	9.83	15.83	0.07	94.77	94.77	0.15	-0.90	-0.90	-0.14	9.09	5.65	-0.07	86.69	33.28	2.57	29338.5***	1567.3***	0.30
IND	0.81	0.45	1.45	2.78	2.17	3.69	10.53	10.25	10.53	-0.90	-0.90	-0.90	2.78	3.90	1.77	8.91	16.67	4.24	262.9***	371.6***	21.1***
IDO	0.77	0.85	0.72	2.65	2.80	2.61	9.66	9.26	9.66	-0.91	-0.91	-0.91	2.74	2.43	2.97	8.71	7.08	10.00	251.1***	60.5***	126.5***
SL	0.839	1.217	0.758	2.89	3.45	2.81	11.53	11.53	10.32	-0.913	-0.913	-0.911	2.78	2.11	2.98	8.95	5.64	10.06	265.3***	37.0***	128.1***
THA	1.45	1.80	1.19	3.59	3.89	3.38	10.32	10.06	9.72	-0.99	-0.99	-0.90	1.69	1.36	2.05	3.99	2.96	5.30	49.6***	11.0***	33.2***
TUN	0.35	0.67	0.02	1.83	2.55	0.03	9.26	9.17	0.10	-0.90	-0.90	-0.03	4.51	2.96	0.73	21.67	9.94	3.04	1720.3***	124.9***	3.16
US	0.95	0.21	0.90	2.97	1.48	2.91	9.62	8.76	9.07	-0.99	-0.90	-0.90	2.38	5.64	2.43	6.78	33.27	7.00	147.8***	1565.3***	59.4***

Where JAM represents Jamaica, KEN for Kenya, KUW for Kuwait, LEB for Lebanon, MAU for Mauritius, OMN for Oman, JOR for Jordan, ARG for Argentina, IND for India, IDO for Indonesia, SL for Sri Lanka, THA for Thailand, TUN for Tunisia and US for the United States of America.

Note 1: number of observations is 96 for the overall sample, and 36 for the pre and post periods.

Note 2: throughout the manuscript, *,**,*** denote significance at the 10%, 5%, and 1% significance levels respectively.

Table 5 provide the summary of the descriptive statistic of the stock returns for the Group B. Panel A and B provides the details of adopters and non-adopters' countries (control group) respectively, for the overall, pre and post periods. In general, the average returns of both adopters and not adopters are positive in overall, Pre and Post-IFRS adoption periods except Ireland and Netherlands have negative returns in the pre-adoption period. Overall findings reveal that the stock returns of both adopters and non-adopters are mixed, some stock markets have higher returns while others have lower. Comparing the pre and post period, overall mean returns in the post-IFRS adoption are lower than pre-IFRS adoption for adopters and higher in non-adopters with few exceptions. The standard deviation or unconditional volatilities are also had a mixed trend, some countries have higher values while others have lower, in both groups and time periods. All the returns series have leptokurtic distribution since the kurtosis values are higher than 3. The Jarque-Bera test results indicate that the null hypothesis of normality for both groups has been rejected.

Further detailed examination of panel A and B of Table 5 shows that the means stock returns of adopters range from 0.52% (Belgium) to 2.88%(Portugal), and 0.26%(Tunisia) to 4.96% (Chile) for non-adopters for overall period. In general, post-adoption period returns are higher than pre-adoption. There is a similar trend in the standard distributions in general but Portugal has lower standard distribution in the post-IFRS adoption. All the stock markets have positively skewed returns in all the periods, except Ireland and Netherland have negative skewness.

Table 5: Descriptive statistics of returns (Group B)

Panel A: Adopters

Country	Mean			Std. Dev.			Maximum			Minimum			Skewness			Kurtosis			Jarque-Bera		
	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post
AUS	0.86	1.36	0.45	2.84	3.50	2.11	9.57	9.31	9.36	-0.91	-0.91	-0.90	2.55	1.75	3.82	7.62	4.15	15.87	189.3***	20.4***	335.9***
AST	1.98	3.09	0.96	10.85	17.22	3.12	103.10	103.10	10.36	-0.99	-0.99	-0.91	8.60	5.68	2.48	80.37	33.47	7.33	25126.4***	1586.4***	65.1***
BEL	0.52	0.23	0.45	2.24	1.55	2.09	9.60	9.22	9.04	-0.90	-0.90	-0.90	3.56	5.65	3.81	13.86	33.32	15.75	674.5***	1570.4***	330.7***
CRO	0.62	0.47	0.69	2.39	2.15	2.50	9.68	9.18	9.01	-0.91	-0.90	-0.91	3.24	3.81	2.97	11.64	15.75	9.94	466.4***	331.0***	125.2***
CZR	0.77	0.91	0.64	2.67	2.95	2.43	9.68	9.56	8.82	-0.90	-0.90	-0.90	2.75	2.43	2.95	8.74	7.06	9.91	252.6***	60.1***	124.0***
DEN	1.70	0.65	3.67	10.51	2.56	16.87	100.56	9.10	100.56	-0.91	-0.91	-0.91	8.84	2.94	5.48	83.37	9.85	31.95	27087.6***	122.3***	1437.2***
EST	0.90	0.71	0.47	2.91	2.59	2.12	10.61	9.95	9.98	-0.91	-0.90	-0.91	2.58	2.98	3.88	7.83	10.12	16.54	199.5***	129.3***	365.0***
FIN	1.45	2.75	0.64	9.56	15.32	2.45	91.62	91.62	8.64	-0.99	-0.99	-0.91	8.90	5.65	2.95	84.15	33.29	9.88	27608.1***	1567.7***	123.2***
FRA	1.69	3.63	0.67	11.12	17.92	2.53	107.07	107.07	9.75	-0.99	-0.99	-0.90	9.01	5.56	2.98	85.67	32.60	10.13	28638.6***	1500.3***	129.6***
GER	1.91	3.72	0.92	10.70	17.12	2.85	102.15	102.15	9.30	-0.99	-0.99	-0.90	8.71	5.50	2.45	81.83	32.13	7.13	26068.4***	1454.8***	61.6***
GRE	0.69	0.68	0.43	2.60	2.57	2.11	9.79	9.51	9.48	-0.91	-0.90	-0.91	2.97	2.97	3.83	10.01	9.96	15.94	337.8***	125.5***	339.1***
HK	1.64	0.24	3.67	10.43	1.59	16.79	100.14	9.46	100.14	-0.99	-0.89	-0.99	8.93	5.65	5.49	84.53	33.37	32.05	27863.8***	1575.3***	1447.1***
HUN	1.58	0.22	3.77	10.56	1.32	17.06	101.57	7.84	101.57	-0.99	-0.91	-0.99	9.01	5.60	5.45	85.64	33.02	31.75	28615.8***	1539.5***	1418.5***
ICE	2.04	0.72	4.03	11.18	2.61	17.87	106.62	9.46	106.62	-0.99	-0.91	-0.99	8.68	2.96	5.47	81.39	9.91	31.93	25784.9***	124.2***	1435.5***
IRE	2.34	-0.02	5.54	14.05	0.16	22.63	107.77	0.08	107.77	-0.99	-0.90	-0.99	6.66	-4.74	3.94	46.76	26.53	16.83	8369.4***	965.4***	380.0***
ITA	2.57	0.44	3.20	14.34	2.09	16.57	99.34	8.92	98.91	-0.99	-0.99	-0.99	6.46	3.80	5.58	43.70	15.70	32.75	7292.2***	328.5***	1514.7***
LUX	1.44	0.64	2.74	9.57	2.41	15.35	91.80	9.05	91.80	-0.99	-0.91	-0.99	8.92	2.99	5.65	84.41	10.24	33.28	27784.4***	132.3***	1567.2***
MAL	1.77	0.45	3.78	9.97	2.08	15.93	94.72	8.87	94.72	-0.99	-0.90	-0.99	8.61	3.81	5.38	80.47	15.72	31.20	25196.1***	329.8***	1367.0***
NETH	0.77	-0.01	1.35	2.70	0.07	3.48	9.96	0.13	9.96	-0.91	-0.20	-0.90	2.75	-0.80	1.77	8.77	3.74	4.26	254.4***	4.7***	21.2***
NOR	1.90	3.64	0.96	11.09	17.76	2.98	106.06	106.06	10.18	-0.99	-0.99	-0.91	8.79	5.55	2.47	82.79	32.48	7.23	26700.7***	1488.6***	63.3***
PHI	1.83	0.68	4.20	11.00	2.54	17.69	105.26	9.04	105.26	-0.99	-0.90	-0.99	8.81	2.96	5.40	83.04	9.90	31.33	26867.0***	123.8***	1378.8***
POL	0.62	0.73	0.44	2.38	2.60	2.01	10.19	10.19	8.81	-0.91	-0.90	-0.91	3.26	3.02	3.80	11.91	10.32	15.74	487.6***	135.0***	330.3***
POR	2.88	6.10	0.67	13.82	22.07	2.57	95.61	95.61	9.67	-0.99	-0.99	-0.91	6.28	3.78	2.98	42.09	15.53	10.04	6741.9***	321.1***	127.5***
SA	4.06	4.33	3.46	18.05	16.53	17.99	107.53	98.10	107.53	-0.99	-0.99	-0.99	5.18	5.28	5.60	28.64	30.47	32.90	3059.4***	1299.3***	1529.8***
SLO	2.47	0.27	5.87	14.30	1.63	23.01	103.82	9.73	103.82	-0.99	-0.90	-0.99	6.54	5.64	3.85	44.71	33.30	16.01	7643.8***	1567.9***	342.7***
SPN	0.77	0.67	0.90	2.69	2.54	2.93	9.64	9.45	9.43	-0.91	-0.91	-0.90	2.75	2.98	2.44	8.74	10.08	7.11	252.9***	128.3***	61.1***
SWE	0.68	0.87	0.47	2.53	2.82	2.14	9.46	9.24	9.46	-0.91	-0.91	-0.90	2.97	2.44	3.82	10.05	7.12	15.83	340.2***	61.2***	334.2***
TUR	1.30	1.60	0.93	3.42	3.78	2.96	10.78	10.78	10.42	-0.91	-0.91	-0.90	1.91	1.59	2.46	4.82	3.72	7.27	71.6***	15.9***	63.7***
UK	0.60	0.45	0.45	2.40	2.14	2.07	9.42	9.29	8.83	-0.90	-0.90	-0.90	3.23	3.82	3.81	11.62	15.78	15.72	463.9***	332.3***	329.5***

Panel B: Adopters

Country	Mean			Std. Dev.			Maximum			Minimum			Skewness			Kurtosis			Jarque-Bera		
	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post
ARG	1.25	0.76	2.55	8.59	2.73	13.77	82.23	10.27	82.23	-0.99	-0.90	-0.99	8.91	2.97	5.61	84.19	10.03	32.93	27638.1***	127.0***	1532.2***
CHL	4.96	3.93	3.15	20.41	16.92	17.89	107.18	100.73	107.18	-0.99	-0.99	-0.99	4.47	5.42	5.69	21.38	31.50	33.60	1670.3***	1394.3***	1598.6***

CHN	0.89	0.68	1.17	2.97	2.59	3.34	11.76	9.84	10.24	-0.91	-0.90	-0.91	2.61	2.98	2.08	8.04	10.09	5.45	210.3***	128.7***	34.9***
IND	1.07	0.44	1.46	3.17	1.96	3.78	12.13	8.59	12.13	-0.91	-0.90	-0.91	2.29	3.80	1.83	6.49	15.71	4.58	132.7***	328.7***	23.9***
IDO	0.81	0.48	0.97	2.75	2.12	3.05	10.34	9.13	10.34	-0.91	-0.91	-0.91	2.75	3.80	2.45	8.72	15.71	7.13	251.6***	328.9***	61.4***
JAP	0.75	0.22	0.87	2.64	1.47	2.81	9.47	8.75	9.46	-0.91	-0.90	-0.91	2.75	5.63	2.44	8.72	33.25	7.15	251.5***	1562.7***	61.6***
MLY	1.62	3.84	0.48	10.31	16.60	2.19	98.85	98.85	9.40	-0.99	-0.99	-0.90	8.90	5.42	3.81	84.14	31.54	15.76	27599.2***	1398.4***	331.5***
MEX	1.71	1.16	0.24	11.06	3.26	1.52	106.45	9.48	9.05	-0.99	-0.91	-0.90	8.99	2.06	5.64	85.43	5.36	33.26	28472.0***	33.8***	1563.8***
PER	2.95	3.23	3.91	14.38	16.68	16.52	99.66	99.66	98.22	-0.99	-0.99	-0.99	6.29	5.60	5.38	42.22	32.86	31.19	6786.4***	1525.8***	1365.7***
RUS	1.52	3.26	0.50	9.67	15.52	2.19	92.35	92.35	9.88	-0.91	-0.90	-0.91	8.80	5.48	3.82	82.84	31.94	15.91	26741.2***	1436.6***	337.7***
SK	0.52	0.45	0.73	2.19	2.07	2.60	9.41	9.16	9.41	-0.99	-0.90	-0.99	3.56	3.81	2.97	13.93	15.83	9.96	681.5***	334.3***	125.5***
SL	0.58	0.51	0.53	2.41	2.24	2.26	10.32	9.71	10.30	-0.90	-0.90	-0.90	3.57	3.81	3.84	13.97	15.75	16.06	684.9***	330.9***	344.2***
THA	1.31	1.83	0.94	3.42	3.95	2.99	10.45	10.32	10.45	-0.99	-0.99	-0.90	1.88	1.33	2.46	4.65	2.87	7.24	67.4***	10.6***	63.2***
TUN	0.26	0.23	0.45	1.57	1.55	2.04	9.43	9.26	9.43	-0.91	-0.90	-0.91	5.34	5.65	3.85	30.08	33.38	16.24	3388.3***	1575.8***	352.0***
US	1.02	1.41	0.65	3.09	3.58	2.55	9.62	9.62	9.37	-0.99	-0.99	-0.90	2.23	1.76	2.95	6.07	4.17	9.91	116.8***	20.6***	123.8***

Where AUS represents Australia, AST = Austria, BEL = Belgium, CRO = Croatia, CZR = Czech Republic, DEN = Denmark, EST = Estonia, FIN = Finland, FRA = France, GER = Germany, GRE = Greece, HK = Hong Kong, HUN = Hungary, ICE = Iceland, IRE = Ireland, ITA = Italy, LUX = Luxembourg, MAL = Malta, NETH = Netherlands, NOR = Norway, PHI = Philippines, POL = Poland, POR = Portugal, SA = South Africa, SLO = Slovakia, SPN = Spain, SWE = Sweden, TUR = Turkey, and UK for United Kingdom.

Where ARG = Argentina, CHL = Chile, CHN = China, IND = India, IDO = Indonesia, JAP = Japan, MLY = Malaysia, MEX = Mexico, PER = Peru, RUS = Russia, SK = South Korea, SL = Sri Lanka, THA = Thailand, TUN = Tunisia, US and United States of America.

Note 1: number of observations is 96 for the overall sample, and 36 for the pre and post periods.

Note 2: throughout the manuscript, *,**,*** denote significance at the 10%, 5%, and 1% significance levels respectively.

Table 6: Descriptive statistics of returns (Group C)

Panel A: Adopters

Country	Mean			Std. Dev.			Maximum			Minimum			Skewness			Kurtosis			Jarque-Bera		
	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post
BRA	3.19	0.02	2.94	16.50	0.07	15.14	96.26	0.17	90.38	-0.99	-0.11	-0.99	5.31	0.10	5.57	29.51	2.88	32.67	3263.3***	0.09	1506.4***
CAN	1.56	0.49	3.00	10.44	2.20	16.77	100.39	9.51	100.39	-0.99	-0.91	-0.99	8.99	3.82	5.67	85.30	15.77	33.43	28387.2***	332.1***	1581.6***
CHL	2.79	6.38	0.88	14.34	22.95	2.85	100.04	100.04	9.10	-0.99	-0.99	-0.90	6.37	3.77	2.43	42.90	15.52	7.04	7017.8***	320.7***	59.9***
ISR	2.43	0.24	3.36	14.08	1.52	16.49	98.44	9.07	98.44	-0.99	-0.90	-0.99	6.51	5.64	5.55	44.22	33.32	32.51	7475.1***	1569.6***	1490.9***
ROM	0.52	1.18	-0.01	2.24	3.27	0.17	9.84	9.84	0.11	-0.99	-0.91	-0.99	3.55	2.05	-5.16	13.86	5.33	29.67	673.5***	33.4***	1226.3***

Panel B: Non Adopters

Country	Mean			Std. Dev.			Maximum			Minimum			Skewness			Kurtosis			Jarque-Bera		
IND	1.05	0.95	0.96	3.13	3.01	3.04	9.88	9.78	9.88	-0.91	-0.90	-0.91	2.24	2.44	2.44	6.13	7.09	7.06	119.4***	60.8***	60.3***
JAP	0.85	0.92	0.73	2.81	2.95	2.70	10.15	9.47	10.15	-0.91	-0.90	-0.90	2.56	2.43	2.98	7.73	7.03	10.04	194.6***	59.8***	127.4***
MLY	0.18	0.01	0.00	1.35	0.03	0.02	9.40	0.10	0.04	-0.90	-0.07	-0.04	6.60	0.35	-0.35	45.15	4.10	2.46	7803.5***	2.55	1.19
SK	1.44	0.66	0.44	9.02	2.45	2.07	100.05	9.16	8.99	-0.989	-0.902	-0.900	10.07	2.96	3.81	110.04	9.97	15.76	65243.1***	125.6***	331.5***
US	0.94	1.36	0.50	2.95	3.50	2.16	9.44	9.39	9.44	-0.99	-0.99	-0.90	2.38	1.75	3.85	6.76	4.15	15.92	147.0***	20.4***	339.4***

Where BRA represents Brazil, CAN = Canada, CHL = Chile, ISR = Israel, ROM = Romania, IND = India, JAP = Japan, MLY = Malaysia, TUN = Tunisia, and US for United States of America.

Note 1: number of observations is 96 for the overall sample, and 36 for the pre and post periods.

Note 2: throughout the manuscript, *,**,*** denote significance at the 10%, 5%, and 1% significance levels respectively.

Table 6 provides the summary of the descriptive statistic of the stock returns for the Group C. Panel A provides the details of adopters and Panel B non-adopters' countries (control group), for the overall, pre and post periods. In general, the average returns of both treatment and control groups are positive except Romania have negative returns in the post IFRS adoption period. Overall, some markets have higher returns while the others have lower. Detailed examination of Panel A shows that Chile has the highest returns (2.79%) in adopters while India has higher returns (1.5%) in non-adopters for the overall period unconditional volatilities or standard deviation is highest in Brazil and Israel. Malaysia has the lowest returns among all the sample countries. Overall returns and volatilities are increased in the post-adoption period compared to pre-adoption, except Chile its standard deviation of returns decreased to 2.85% from 22.95% in the post-adoption period. Romania and United State returns and volatility both decreased in the post-adoption period. Adopters have higher returns and volatilities compared to non-adopters. All the stock markets have kurtosis greater than 3 for all periods, indicating that all index return have leptokurtic distribution. All the stock markets have positively skewed returns in all the periods, except Romania and Malaysia have negative skewness during the post-adoption period. The Jarque-Bera test results indicate that the null hypothesis of normality for both groups has been rejected.

Table 7 describes the summary of the descriptive statistic of the stock returns for the Group D. Panel A and B provides the details of adopters and non-adopters' countries (control group) respectively, for the overall, pre and post periods. In general, the average returns of both treatment and control groups are positive. The overall findings show that the stock returns of both adopters and non-adopters have an increasing trend in the post-adoption period, except Argentina, Peru and China have lower returns in post-adoption period. The standard deviation or unconditional volatilities are higher in the adopter's group in comparison to non-adopters and also are higher in post-IFRS adoption period.

All the stock markets have kurtosis greater than 3 for all periods, indicating that all index return have leptokurtic distribution. The Jarque-Bera test results indicate that the null hypothesis of normality for both groups has been rejected. Further scrutiny of Tables 7 reveals that in adopters' countries average returns of Mexico are higher for overall period (2.78%), Peru has higher returns in pre-adoption while Thailand

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has higher returns in the post-IFRS adoption. India has the highest mean returns and volatilities in the non-adopters group. All the stock markets have positively skewed returns in all the periods.

Table 7: Descriptive statistics of returns (Group D)

Panel A: Adopters

	Mean			Std. Dev.			Maximum			Minimum			Skewness			Kurtosis			Jarque-Bera		
	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post	Overall	Pre	Post
ARG	1.61	2.55	0.92	9.25	13.77	2.88	82.23	82.23	11.78	-0.99	-0.99	-0.91	8.08	5.61	2.64	70.55	32.93	8.68	16883.1***	1532.2***	90.3***
MEX	2.78	0.24	0.89	15.04	1.52	2.87	99.56	9.05	9.17	-0.99	-0.90	-0.90	6.06	5.64	2.43	38.48	33.26	7.02	4921.3***	1563.8***	59.7***
RUS	0.76	0.50	0.88	2.65	2.19	2.89	10.21	9.88	10.21	-0.91	-0.91	-0.91	2.76	3.82	2.47	8.89	15.91	7.33	228.1***	337.7***	64.7***
SL	1.89	0.53	3.68	11.10	2.26	16.72	99.58	10.30	99.58	-0.99	-0.90	-0.99	8.29	3.84	5.46	73.22	16.06	31.82	18218.4***	344.2***	1425.3***
THA	2.11	0.94	3.73	11.45	2.99	17.17	102.41	10.45	102.41	-0.99	-0.90	-0.99	8.16	2.46	5.49	71.79	7.24	32.04	17492.9***	63.3***	1445.6***
PER	1.96	3.91	0.22	11.00	16.52	1.56	98.22	98.22	9.29	-0.99	-0.99	-0.91	8.16	5.38	5.65	71.65	31.19	33.35	17423.8***	1365.7***	1573.5***

Panel A: Adopters

	Mean			Std. Dev.			Maximum			Minimum			Skewness			Kurtosis			Jarque-Bera		
CHN	1.01	1.17	0.75	3.09	3.34	2.68	10.24	10.24	9.66	-0.91	-0.91	-0.90	2.33	2.08	2.98	6.54	5.45	9.99	119.6***	34.9***	126.4***
IND	1.13	1.46	1.16	3.29	3.78	3.30	12.13	12.13	9.88	-0.91	-0.91	-0.91	2.20	1.83	2.06	6.08	4.58	5.34	101.3***	23.9***	33.6***
IDO	1.11	0.97	1.16	3.20	3.05	3.32	10.34	10.34	9.60	-0.91	-0.91	-0.91	2.16	2.45	2.05	5.77	7.13	5.29	91.9***	61.4***	33.1***
JAP	0.88	0.86	1.18	2.87	2.81	3.36	10.15	9.46	10.15	-0.91	-0.91	-0.90	2.51	2.44	2.06	7.49	7.15	5.34	158.9***	61.6***	33.6***
SK	0.60	0.73	0.45	2.38	2.60	2.12	9.41	9.41	9.40	-0.99	-0.99	-0.90	3.28	2.97	3.83	11.92	9.96	15.89	429.1***	125.6***	337.0***
TUN	0.58	0.45	0.69	2.35	2.04	2.59	9.52	9.43	9.52	-0.91	-0.91	-0.90	3.29	3.85	2.97	12.03	16.24	9.98	436.6***	352.1***	125.8***

Where ARG represents Argentina, MEX = Mexico, RUS = Russia, SL = Sri Lanka, THA = Thailand, PER = Peru. CHN represents China, IND = India, IDO = Indonesia, JAP = Japan, SK = South Korea, and TUN for Tunisia.
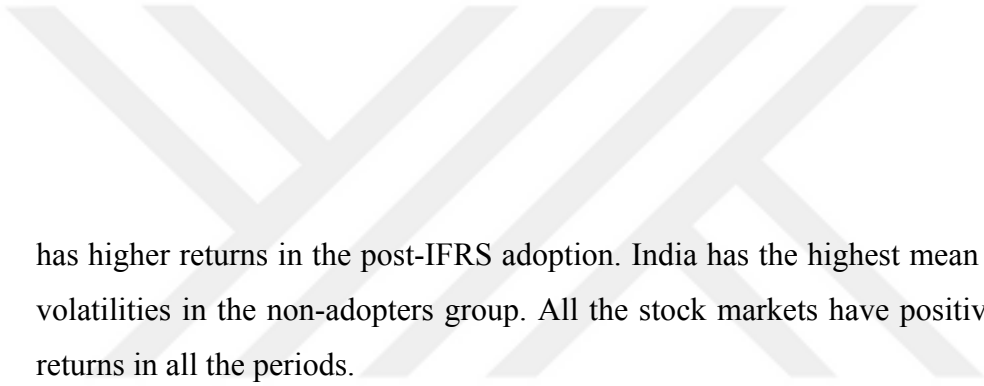
Note 1: number of observations is 96 for the overall sample, and 36 for the pre and post periods.

Note 2: throughout the manuscript, *,**,*** denote significance at the 10%, 5%, and 1% significance levels respectively.

4.2   Graphs of the stock returns:

Figure 4 displays the stock returns of Group A countries indices, adopters, and non-adopters, right and left respectively. The shaded area (2003-2004) indicates the years of IFRS adoption, Period before that is Pre-IFRS adoption (2000-2002) and after is Post-IFRS adoption (2005-2007). Returns are filtered using a Hodrick-Prescott (H-P) filter with the recommended monthly smoothing parameter $\lambda = 14400$ for the graphic representation. H-P filer is only used for graphs, not for calculations. It could be seen that for both adopters and non-adopters returns are moving closer to each other in the pre-adoption period, and there are more variations in the post-adoption period. Jamaica has very high returns in the post-adoption period. However, non-adopters' returns are more close to each other in the post-adoption period. In post-adoption period Argentina has the higher returns than the rest of non-adopters but in post-adoption all have the same trend.

Figure 4: Graph of monthly returns (Group A)
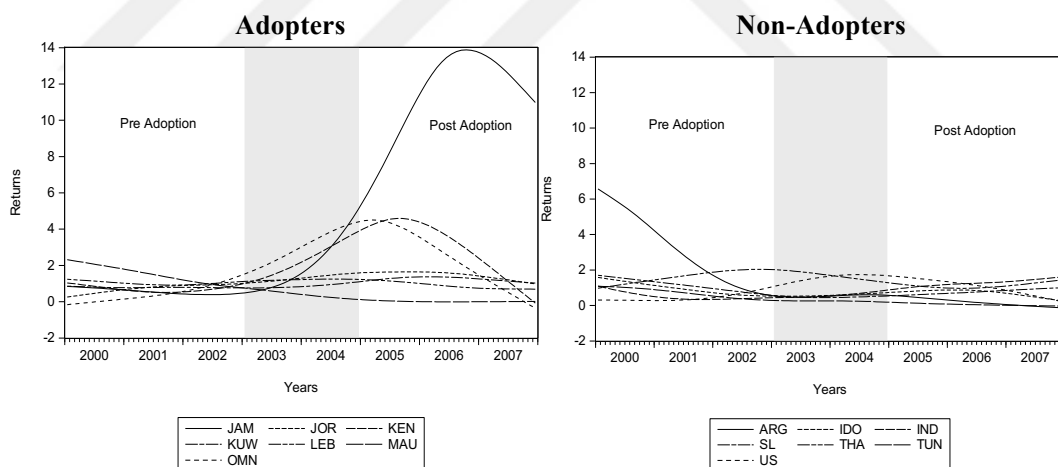
Source: Author calculations based on Thomson Reuters data.
Note 1: Where JAM represents Jamaica, KEN for Kenya, KUW for Kuwait, LEB for Lebanon, MAU for Mauritius, OMN for Oman, JOR for Jordan, ARG for Argentina, IDO for Indonesia, IND for India, THA for Thailand, TUN for Tunisia and US for the United States of America.
Note 2: For graphical illustration, the results are filtered using a Hodrick-Prescott (H-P) filter with the recommended monthly smoothing parameter $\lambda = 14400$. H-P filer is only used for graphs, not for calculations.
Note 3: The shaded area (2003-2004) indicates the year of IFRS adoption, Period before that is Pre-IFRS adoption (2000-2002) and after is Post-IFRS adoption (2005-2007).

Figure 5 exhibit the stock returns of Group B countries indices, adopters and non-adopters respectively (left and right).   The shaded area (2005-2006) indicates the years of IFRS adoption, Period before that is Pre-IFRS adoption (2002-2004) and

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after is Post-IFRS adoption (2009-2011), the period 2007-2008 (shaded) is excluded from the analysis because of the great financial crisis. Returns are filtered using a Hodrick-Prescott (H-P) filter with the recommended monthly smoothing parameter λ = 14400 for the graphic representation. H-P filer is only used for graphs, not for calculations.

From the inspection of figure 5 left side, the overall returns vary between the -1 to 4 in pre-adoption and -1 to 6 during post-adoption. Comparing the pre and post shows that there are greater variations in the returns during the post-adoption period. Portugal has different trend from the rest of countries in the pre-adoption period and Luxemburg in the post-adoption period. However, Non-adopters (right side) shows different trend there is lesser variation during the post-adoption period. China trend is entirely different from the others in the convergence and crisis period. Argentina also behaves differently from others during post-adoption.

Figure 5: Graph of monthly returns (Group B)
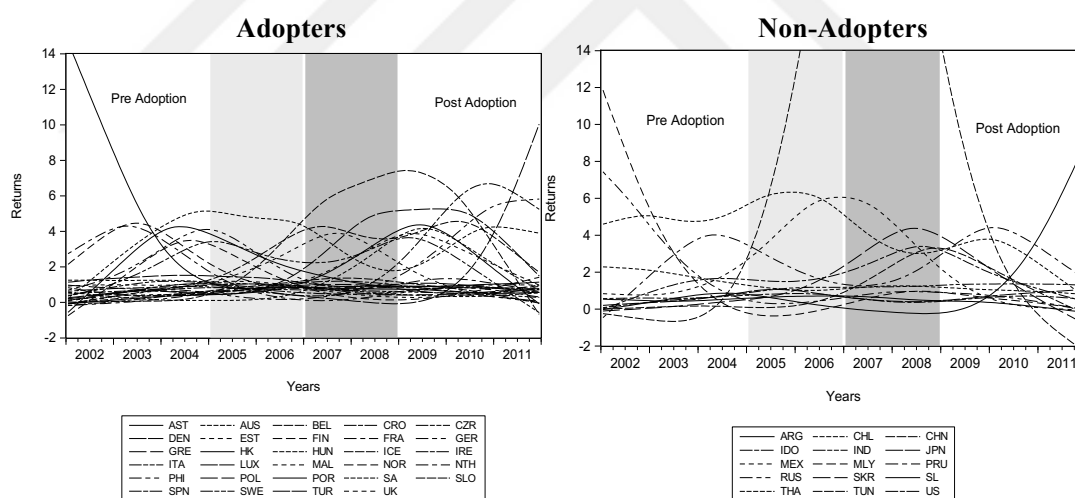
Source: Author calculations based on Thomson Reuters data.
Notes 1: Where AUS represents Australia, AST = Austria, BEL = Belgium, CRO = Croatia, CZR = Czech Republic, DEN = Denmark, EST = Estonia, FIN = Finland, FRA = France, GER = Germany, GRE = Greece, HK = Hong Kong, HUN = Hungary, ICE = Iceland, IRE = Ireland, ITA = Italy, LUX = Luxembourg, MAL = Malta, NTH = Netherlands, NOR = Norway, PHI = Philippines, POL = Poland, POR = Portugal, SA = South Africa, SLO = Slovakia, SPN = Spain, SWE = Sweden, TUR = Turkey, UK for United Kingdom, ARG = Argentina, CHL = Chile, CHN = China, IND = India, IDO = Indonesia, JAP = Japan, MLY = Malaysia, MEX = Mexico, PER = Peru, RUS = Russia, SK = South Korea, SL = Sri Lanka, THA = Thailand, TUN = Tunisia, US and United States of America.
Notes 2: For graphical illustration, the results are filtered using a Hodrick-Prescott (H-P) filter with the recommended monthly smoothing parameter λ = 14400. H-P filer is only used for graphs, not for calculations.
Notes 3: The shaded area (2005-2006) indicates the year of IFRS adoption, Period before that is Pre-IFRS adoption (2002-2004) and after is Post-IFRS adoption (2009-2011).

Figure 6 displays the stock returns of Group C countries indices, adopters and non-adopters (left to right). The shaded area (2010-2011) indicates the year of IFRS

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adoption, Period before that is Pre-IFRS adoption (2004-2006) and after is Post-IFRS adoption (2012-2014). Period of 2007-2009 has been excluded from the analysis because of the financial crisis. Returns are filtered using a Hodrick-Prescott (H-P) filter with the recommended monthly smoothing parameter $\lambda = 14400$ for the graphic representation. H-P filer is only used for graphs, not for calculations.

It could be seen that there are variations in the return trend of countries for both adopters and non-adopters returns. In the adopter's group returns are varying between 0 to 6 points while in non-adopters' variation is lower (-.02 to 4). Chile returns are higher and have different trend during the pre-adoption period than the rest of adopter countries. If we compare the right and left sides of figure 6, it is obvious that non-adopters group returns are closer to each other during both (pre and post-adoption) periods.

Figure 6: Graph of monthly returns (Group C)
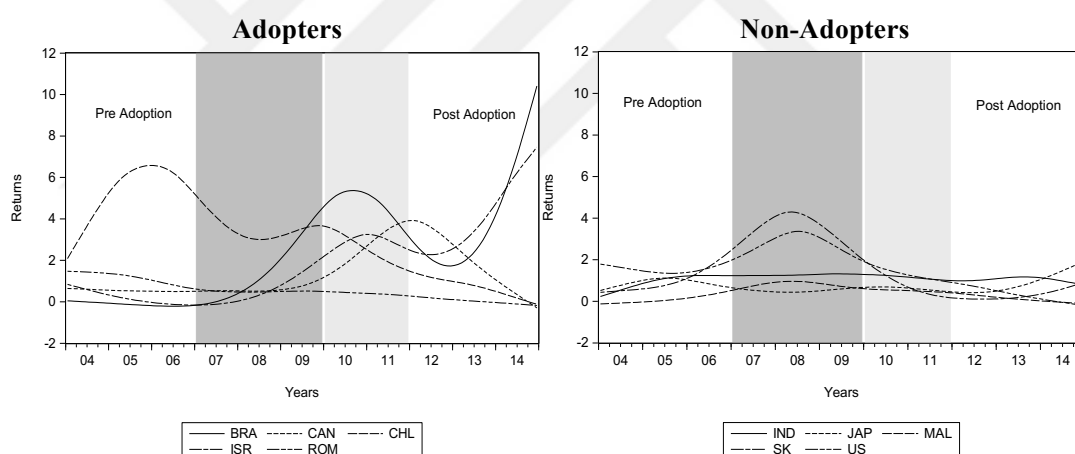
Source: Author calculations based on Thomson Reuters data.
Notes 1: Where IND = India, JAP = Japan, MAL = Malaysia, SK = South Korea, US = United States of America, BRA = Brazil, CAN = Canada, CHL = Chile, ISR = Israel, and ROM = Romania.
Notes 2: For graphical illustration, the results are filtered using a Hodrick-Prescott (H-P) filter with the recommended monthly smoothing parameter $\lambda = 14400$. H-P filer is only used for graphs, not for calculations.
Notes 3: The shaded area (2010-2011) indicates the year of IFRS adoption, Period before that is Pre-IFRS adoption (2004-2006) and after is Post-IFRS adoption (2012-2014).

Figure 7 demonstrates the stock returns of Group D countries indices, adopters and non-adopters respectively. The shaded area (2012) indicates the year of IFRS adoption, Period before that is Pre-IFRS adoption (2009-2011) and after is Post-IFRS adoption (2013-2015). Returns are filtered using a Hodrick-Prescott (H-P) filter with the recommended monthly smoothing parameter $\lambda = 14400$ for the graphic representation. H-P filer is only used for graphs, not for calculations.

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Examination of right and left sides of figure 7 shows that the returns variation in the adopter's group is higher than the non-adopters. Adopters returns vary between -2 to 7, while non-adopters between 0 to 2.

Figure 7: Graph of monthly returns (Group D)

4.3   Empirical results of Pearson Correlation:

Table 8 to Table 11 exhibits the Pearson correlation coefficients of Group A to Group D respectively. Monthly stock returns correlations of both adopters and non-adopters are provided. The tables are divided into two parts diagonally; the lower diagonal shows the Pre-IFRS correlations while upper diagonal **bold** part represents the Post-IFRS adoption correlations. The table is also divided into four quarters with 2 lines (one vertical and one horizontal). 1st quarter exhibits the correlation coefficients of adopters' vs adopter countries and 4th quarter shows the non-adopters vs non-adopters. The 2nd quarters represent the correlations between the adopters' vs non-adopters in the post-IFRS adoption period while the 3rd quarter explains the coefficients between the adopters' vs non-adopters in the pre IFRS adoption period.

Detailed examination of Table 8 shows that overall the correlation coefficients are very small and insignificant between all groups and time periods. 1st quarter of Table 3a reveals that the correlations between the four adopters' countries increased in the post-adoption period i.e. Kuwait vs Lebanon, Kuwait vs Oman, Jamaica vs Jordan, and Lebanon vs Oman. Form the 4th quarter correlations between the Thailand and Argentina and the US and Indonesia has been decreased in the post-adoption period. While between the China and Thailand, and Argentina and US are increased in the post-adoption period. Comparing the 2nd and 3rd quarter shows that correlations between adopters' vs non-adopters. Argentina vs Lebanon and the US vs Kenya have the significant correlation in the pre IFRS adoption period but not in the post-IFRS period. There is also a significant correlation between the Jamaica and Indonesia in post-adoption period. There is the evidence of some increased correlation between the adopters after having the same IFRS integration between the markets. However, the further powerful test is needed to check the behavior of the markets.

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Table 8: Correlation coefficients for the Pre and Post Adoption Periods

(Group A)

	JAM	JOR	KEN	KUW	LEB	MAU	OMN	ARG	IND	IDO	SL	THA	TUN	US
JAM	1.00	0.33**	0.01	-0.17	-0.10	-0.06	-0.08	0.04	0.06	0.52***	-0.11	-0.13	-0.03	-0.12
JOR	-0.09	1.00	-0.01	-0.19	0.23	0.14	-0.07	0.35**	0.19	0.19	0.13	-0.15	-0.01	-0.20
KEN	0.09	-0.09	1.00	-0.10	0.05	-0.02	0.05	0.15	-0.02	-0.07	-0.12	-0.09	-0.03	-0.10
KUW	0.18	-0.15	-0.09	1.00	0.35**	0.09	0.37**	-0.02	-0.20	0.10	0.13	-0.18	0.09	0.07
LEB	0.15	-0.08	-0.15	-0.15	1.00	-0.04	0.47**	0.28	0.15	-0.07	-0.09	-0.12	0.22	-0.16
MAU	0.09	0.10	-0.15	-0.19	-0.15	1.00	-0.29*	0.31*	-0.10	0.20	0.37**	0.39*	0.02	0.02
OMN	-0.06	-0.10	-0.10	-0.06	0.35*	0.24	1.00	-0.14	-0.08	-0.06	-0.06	-0.07	0.40*	-0.07
ARG	-0.07	-0.01	-0.06	-0.06	0.49**	-0.05	-0.05	1.00	0.26	0.10	0.12	0.19	-0.10	-0.33**
IND	-0.11	-0.07	-0.08	-0.11	-0.10	-0.11	-0.08	-0.04	1.00	-0.10	-0.12	0.06	0.08	0.06
IDO	-0.14	-0.09	0.18	-0.15	-0.16	0.31*	-0.10	-0.07	-0.11	1.00	0.30	-0.09	-0.04	-0.15
SL	-0.13	-0.11	-0.13	-0.14	-0.13	0.20	0.23	-0.12	-0.14	0.10	1.00	-0.09	0.00	-0.08
THA	0.23	-0.16	-0.03	0.02	0.20	-0.18	-0.11	0.33**	0.12	-0.19	-0.23	1.00	-0.04	-0.11
TUN	-0.09	-0.07	-0.12	-0.11	0.25	0.13	-0.06	0.56***	-0.05	0.22	-0.15	0.13	1.00	0.20
US	-0.11	-0.04	0.49**	-0.05	-0.09	-0.11	-0.10	-0.03	-0.05	0.49**	-0.05	-0.11	-0.10	1.00

*,**,*** denote significance at the 10%, 5% and 1% significance levels respectively.
The Pearson correlation coefficients are calculated using monthly index returns. Upper half **(bold)** diagonal of the table contain the Post-adoption correlation coefficients whereas lower half shows the Pre-adoption correlation coefficients.
Where JAM represents Jamaica, KEN for Kenya, KUW for Kuwait, LEB for Lebanon, MAU for Mauritius, OMN for Oman, JOR for Jordan, ARG for Argentina, CHN for China, IND for India, IDO for Indonesia, THA for Thailand, TUN for Tunisia and US for the United States of America.

Table 9 exhibits the Group B (countries) Pearson correlation coefficients. Monthly stock returns correlations of both adopters and non-adopters are provided. Overall the correlation coefficients are very small and insignificant between all groups and times periods.

1st quarter of table 9 shows that in some adopter countries correlation are increased in the post-adoption period, while in some countries correlation was present in the pre-adoption period but it disappeared in the post-adoption. Australia vs Hong Kong correlation increased from 0.39 to 0.77 in post-adoption period. However, Australia has a small correlation with Luxemburg, Norway, and South Africa in the pre-adoption period which vanished in the post-adoption period. Similarly, Austria has the significant correlations with Greece and Turkey, 0.52 and 0.40 respectively, in the pre-adoption period. Belgian and Slovenian markets are perfectly correlated with each other in the pre-adoption period. Estonia vs Hungry, Finland vs Turkey also had significant positive correlations in the pre-adoption period. Germany is negatively correlated with Ireland while positively correlated with Spain and Turkey during the pre-adoption period. Hong Kong and Philippine have positive correlation while Ireland and Sweden have negative correlations. Italy vs Norway and Luxemburg vs

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Sweden also have significant positive correlations in the pre-adoption period. However, there is no significant correlation between the above pairs during the post-adoption period.

From the upper diagonal of 1st quarter, present of significant correlations between the following pair of markets has been evidenced in the post-adoption period. Hungry vs Hong Kong (0.97), Malta vs Italy (0.98), Philippine vs Austria (0.47), France vs Slovenia (0.42), Spain vs South Africa, and Sweden vs Portugal.

4th quarter of Table 9 describes the correlation between the non-adopter countries. Comparison of lower and upper diagonal reveals that correlation between some countries decreased in the post-adoption period while in the others there is no significant correlation during the pre-adoption period but significant correlation in post-IFRS adoption period. Mexico vs Thailand and Mexico vs Tunisia have significant correlations in the pre-adoption period but no correlation in post-adoption period. On the other hand, following pairs of countries, have no correlations in the pre-adoption period but in the post-adoption they have significant correlations, China vs Chile (0.44), Japan vs Argentina (0.46), Peru vs Chile (0.97), India vs Mexico (0.40), Malaysia vs Sri Lanka (0.44), and the US vs Thailand (0.54).

3rd quarter provides the results of correlations between the adopters and non-adopters in the pre-adoption period. The overall significant correlation was present in the many adopters and non-adopters during the pre-adoption period, but it decreased in the post-adoption. The correlation between the Belgium and Tunisia is 0.99, Australia vs Peru (0.42), Croatia vs Malaysia (0.67), Estonia vs Russia (0.49), Finland vs Sri Lanka (0.70), Germany vs South Korea (0.71), Greece vs Chile (0.57), Greece vs Thailand (0.53), Hong Kong vs Peru (0.99), Hungry vs Russia (0.98), Hungry vs Sri Lanka (0.68),Malta vs India(1.00), Netherland vs Japan(0.48), Philippine vs Peru (0.54), South Africa vs Argentina (0.55), Slovenia vs Mexico (0.45), Sweden vs India (0.65), UK vs China (0.41) and UK vs Egypt (0.69) in the preadoption period. However, In the post-adoption period, there is no significant correlation between these countries.

From the 2nd quarter, Following adopters and non-adopters countries have correlations between them in the post adoption period, Argentina vs Poland (0.66), Netherlands vs Chile (0.42), China vs Australia (0.63), China vs Hong Kong (0.53),

China vs Hungry (0.48), Indonesia vs Finland (0.52), Japan vs Hong Kong(0.50), Japan vs Hungry (0.50), Japan vs Portugal (0.55), Netherland vs Peru (0.43), Russia vs Denmark (0.63), Russia vs Portugal (0.42), Russia vs Sweden (0.52), South Korea vs Denmark (0.55), South Korea vs Hong Kong (0.52), South Korea vs Hungry (0.52), Sri Lanka vs Germany (0.55), Tunisia vs Iceland (0.74), and Tunisia vs Sweden (0.41) .

From the above correlation evidence, no conclusion can be drawn. Evidence of correlation is mixed. So, the further sophisticated models are needed to analyze the integration between the market.

Table 9: Correlation coefficients for the Pre and Post Adoption Periods (Group B)

	AUS	AST	BEL	CRO	CZR	DEN	EST	FIN	FRA	GER	GRE	HK	HUN	ICE	IRE
AUS	1.00	-0.07	-0.05	-0.07	-0.06	-0.06	-0.05	-0.07	-0.06	-0.12	-0.05	0.77***	0.71***	-0.05	-0.05
AST	-0.12	1.00	-0.10	-0.10	-0.11	-0.13	-0.09	-0.14	-0.10	-0.10	-0.10	-0.07	-0.02	-0.02	0.36*
BEL	-0.06	-0.03	1.00	0.37*	-0.07	-0.05	-0.05	-0.06	-0.15	-0.07	-0.09	-0.06	-0.05	-0.07	-0.06
CRO	-0.12	-0.04	-0.03	1.00	-0.08	-0.07	-0.07	0.28	-0.15	0.19	-0.05	-0.03	-0.07	-0.07	-0.07
CZR	-0.14	-0.05	-0.04	-0.10	1.00	-0.02	0.31	-0.11	0.27	0.17	-0.07	-0.06	-0.06	-0.13	0.30
DEN	-0.16	-0.06	-0.10	-0.05	0.19	1.00	-0.06	0.54***	-0.01	-0.03	-0.05	-0.05	-0.05	-0.07	-0.06
EST	-0.19	-0.05	-0.05	-0.06	-0.08	0.31	1.00	-0.15	-0.03	0.27	-0.04	-0.05	0.03	-0.12	0.35*
FIN	-0.08	0.06	-0.03	-0.04	-0.06	-0.11	-0.05	1.00	-0.07	0.20	-0.05	-0.06	-0.07	-0.07	-0.16
FRA	-0.05	-0.05	-0.03	-0.04	-0.06	-0.05	-0.12	-0.05	1.00	-0.09	-0.05	-0.01	-0.07	-0.07	-0.07
GER	0.03	-0.04	-0.03	0.01	-0.12	-0.06	-0.06	-0.04	-0.04	1.00	-0.07	-0.04	-0.08	-0.13	0.25
GRE	-0.15	0.52***	-0.04	-0.06	-0.11	-0.07	-0.07	-0.11	0.00	-0.06	1.00	-0.05	-0.06	-0.01	0.00
HK	0.39**	-0.05	-0.01	-0.11	-0.03	-0.03	-0.04	-0.03	-0.03	0.06	-0.10	1.00	0.97***	-0.05	-0.06
HUN	-0.16	-0.02	-0.02	-0.04	-0.05	-0.04	0.52***	-0.03	-0.02	-0.04	-0.03	-0.03	1.00	-0.05	-0.06
ICE	-0.16	-0.09	-0.05	-0.05	0.26	-0.10	-0.07	0.02	-0.01	-0.07	-0.06	-0.02	-0.03	1.00	-0.07
IRE	0.03	0.04	0.08	0.03	0.18	0.01	-0.02	0.01	0.10	0.93***	0.11	0.02	-0.07	0.13	1.00
ITA	0.23	-0.04	-0.03	-0.09	-0.06	-0.14	-0.10	-0.04	-0.04	-0.13	-0.05	-0.04	-0.04	-0.09	0.06
LUX	0.39**	-0.06	-0.04	-0.06	-0.12	-0.15	-0.12	0.58***	0.00	-0.06	-0.14	-0.05	-0.11	-0.07	-0.03
MAL	-0.08	-0.03	-0.03	-0.05	-0.10	-0.09	-0.06	-0.04	-0.05	-0.05	-0.05	-0.03	-0.03	-0.05	0.11
NTH	-0.11	-0.10	0.16	0.12	0.31	-0.08	-0.19	-0.08	0.22	0.09	0.07	0.05	-0.15	0.26	0.21
NOR	0.36*	-0.04	-0.03	-0.05	0.04	-0.06	-0.07	-0.04	-0.05	-0.04	-0.05	-0.03	-0.04	-0.06	0.05
PHI	0.14	-0.06	-0.10	-0.10	-0.11	-0.10	-0.08	-0.05	0.05	-0.01	0.25	0.56***	-0.05	0.29	0.06
POL	-0.16	-0.05	-0.09	-0.06	-0.14	-0.08	-0.08	-0.05	0.00	-0.06	-0.07	-0.03	-0.05	0.28	0.04
POR	-0.15	-0.05	-0.04	-0.02	-0.09	-0.08	-0.08	-0.05	-0.05	0.01	-0.04	-0.05	0.02	-0.08	-0.11
SA	0.33*	-0.05	-0.06	-0.06	0.02	0.10	0.05	-0.06	-0.06	0.03	-0.07	-0.04	-0.04	-0.08	0.06
SLO	-0.06	-0.03	1.0***	-0.04	-0.04	-0.10	-0.04	-0.03	-0.05	-0.03	-0.02	-0.01	-0.01	-0.08	0.07
SPN	0.10	-0.05	-0.10	-0.06	-0.10	-0.08	-0.11	-0.06	0.00	0.58***	-0.06	-0.04	-0.10	0.25	-0.61
SWE	0.28	-0.12	-0.05	-0.06	-0.11	-0.11	0.19	-0.11	-0.01	-0.07	-0.11	-0.05	-0.11	-0.08	0.02
TUR	-0.04	0.40**	-0.07	-0.10	0.10	-0.16	-0.16	0.36*	-0.09	0.39**	0.08	-0.11	-0.11	0.15	-0.42**
UK	0.23	-0.04	-0.03	-0.10	0.34	-0.10	-0.11	-0.04	-0.04	-0.04	-0.05	-0.03	-0.04	-0.09	0.08
ARG	0.15	-0.06	-0.04	0.37*	-0.11	-0.06	-0.07	-0.11	0.00	0.00	0.27	-0.10	-0.03	-0.11	0.07
CHL	-0.10	-0.04	-0.03	-0.06	0.03	-0.06	-0.06	-0.04	-0.05	0.04	-0.03	0.57***	-0.03	-0.01	0.06
CHN	-0.11	-0.05	-0.04	-0.10	0.27	-0.07	-0.09	-0.05	-0.06	-0.06	-0.11	-0.04	-0.03	-0.07	0.04
IND	0.21	-0.04	-0.03	-0.06	-0.07	-0.07	0.33*	-0.04	-0.05	-0.05	-0.06	-0.04	-0.12	-0.06	-0.07
IDO	-0.09	-0.05	-0.03	-0.05	-0.10	-0.09	-0.06	-0.05	-0.04	-0.05	-0.06	-0.04	-0.03	-0.05	0.12
JAP															
MLY	-0.10	-0.04	-0.04	0.67***	-0.09	0.00	-0.06	-0.04	-0.05	0.04	-0.07	-0.04	-0.04	-0.07	-0.01
MEX	-0.24	0.43	0.44	0.26	-0.11	-0.12	0.14	-0.01	-0.08	-0.05	0.19	-0.10	0.39*	0.17	0.04
PER	0.42**	-0.04	-0.02	-0.05	-0.05	-0.05	-0.05	0.05	-0.04	0.05	-0.12	0.99***	-0.03	-0.05	0.02
RUS	-0.04	-0.04	-0.04	-0.06	-0.08	-0.06	0.49**	-0.04	-0.04	-0.04	-0.06	0.07	0.98***	-0.07	-0.08
SK	-0.12	-0.04	-0.03	-0.04	0.24	0.35*	-0.06	-0.05	-0.04	0.71***	-0.05	-0.03	-0.04	-0.10	-0.7***
SL	-0.11	0.03	-0.04	-0.04	-0.08	-0.09	0.33*	0.70***	-0.04	-0.05	-0.11	-0.04	0.68***	-0.06	-0.06
THA	-0.04	0.26	0.37*	0.18	-0.15	-0.14	-0.19	-0.12	-0.07	-0.10	0.53***	-0.07	-0.11	-0.14	0.05
TUN	-0.15	0.99***	-0.03	-0.03	-0.05	-0.04	-0.04	-0.03	-0.02	-0.04	0.54	-0.13	-0.02	-0.04	0.04
US	-0.01	-0.12	-0.09	-0.11	0.32	0.13	-0.14	-0.03	0.45	-0.09	-0.12	-0.06	-0.06	0.41**	0.14

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Where AUS represents Australia, AST = Austria, BEL = Belgium, CRO = Croatia, CZR = Czech Republic, DEN = Denmark, EST = Estonia, FIN = Finland, FRA = France, GER = Germany, GRE = Greece, HK = Hong Kong, HUN = Hungary, ICE = Iceland, IRE = Ireland, ITA = Italy, LUX = Luxembourg, MAL = Malta, NETH = Netherlands, NOR = Norway, PHI = Philippines, POL = Poland, POR = Portugal, SA = South Africa, SLO = Slovakia, SPN = Spain, SWE = Sweden, TUR = Turkey, and UK for United Kingdom.
Where ARG = Argentina, CHL = Chile, CHN = China, IND = India, IDO = Indonesia, JAP = Japan, MLY = Malaysia, MEX = Mexico, PER = Peru, RUS = Russia, SK = South Korea, SL = Sri Lanka, THA = Thailand, TUN = Tunisia, US and United States of America.
The Pearson correlation coefficients are calculated using monthly index returns. Upper half **(bold)** diagonal of the table contain the Post-adoption correlation coefficients whereas lower half shows the Pre-adoption correlation coefficients
*,**,*** denote significance at the 10%, 5% and 1% significance levels respectively.

	ITA	LUX	MAL	NTH	NOR	PHI	POL	POR	SA	SLO	SPN	SWE	TUR	UK	ARG
AUS	-0.04	0.03	-0.05	-0.12	-0.07	-0.05	-0.05	0.38*	-0.04	-0.01	-0.11	-0.04	0.24	-0.05	-0.05
AST	0.00	0.38*	-0.02	-0.15	-0.15	0.47**	-0.10	0.27	-0.01	-0.09	-0.09	0.35*	-0.13	-0.11	-0.06
BEL	-0.04	-0.04	-0.06	0.22	-0.07	-0.05	-0.06	-0.06	-0.04	-0.06	-0.14	-0.04	-0.08	-0.05	-0.05
CRO	-0.05	-0.12	-0.07	0.11	0.22	-0.05	-0.08	-0.08	-0.05	-0.09	-0.11	-0.06	-0.10	-0.06	-0.06
CZR	-0.05	-0.06	0.00	-0.17	0.18	-0.07	0.38	-0.08	-0.05	-0.07	-0.09	-0.06	0.19	0.38	-0.06
DEN	-0.05	-0.04	-0.06	-0.01	-0.08	-0.05	0.02	-0.07	-0.04	-0.05	-0.07	-0.05	-0.02	-0.06	-0.04
EST	-0.04	-0.05	-0.05	-0.13	0.69***	0.02	-0.04	-0.05	0.04	-0.06	-0.04	-0.02	0.23	-0.05	-0.05
FIN	-0.05	-0.06	-0.07	-0.11	-0.15	-0.13		-0.07	-0.06		0.23	0.36*	-0.12	-0.07	-0.05
FRA	-0.06	-0.05	-0.07	-0.22	-0.09	-0.06	0.37*	-0.07	-0.05	0.42*	0.19	-0.05	-0.08	-0.06	-0.05
GER	-0.06	-0.06	-0.08	0.06	0.39**	-0.07	-0.08	-0.09	-0.06	-0.09	0.19	0.31	0.12	-0.12	-0.06
GRE	-0.05	-0.05	0.03	0.26	0.34*	0.02	-0.06	-0.10	0.64***	-0.05	0.31	-0.10	-0.10	-0.04	0.04
HK	-0.04	0.06	-0.05	-0.06	-0.03	-0.05	-0.05	0.53***	-0.04	0.08	-0.08	-0.05	-0.07	-0.05	-0.04
HUN	-0.03	0.06	-0.06	-0.05	-0.02	-0.05	-0.05	0.59***	-0.03	0.01	-0.08	0.02	-0.13	-0.07	-0.05
ICE	-0.05	-0.04	-0.04	0.38*	-0.14	-0.05	0.01	-0.02	0.04	-0.01	-0.03	-0.05	-0.08	0.01	0.05
IRE	-0.05	-0.04	-0.05	-0.07	0.26	0.75***	-0.06	-0.07	0.02	-0.06	-0.08	-0.06	0.22	-0.05	-0.05
ITA	1.00	-0.04	0.98***	-0.09	-0.07	-0.05	-0.04	0.01	-0.05	-0.06	-0.07	0.03	-0.07	-0.05	-0.04
LUX	-0.06	1.00	-0.04	-0.07	-0.07	-0.05	-0.04	0.01	-0.04	-0.04	-0.07	-0.04	-0.07	-0.04	-0.04
MAL	-0.05	-0.10	1.00	-0.06	-0.03	-0.06	0.02	-0.01	-0.05	-0.07	-0.07	-0.06	-0.08	0.02	0.05
NTH	0.07	-0.23	0.06	1.00	0.07	-0.09	-0.09	-0.14	-0.07	0.13	-0.17	-0.12	-0.19	-0.11	-0.07
NOR	0.68***	-0.05	-0.05	0.12	1.00	-0.02	-0.11	-0.15	0.00	-0.09	-0.10	-0.11	0.09	-0.07	-0.11
PHI	-0.09	-0.07	-0.05	0.11	-0.11	1.00	-0.06	-0.06	0.15	-0.06	0.04	-0.05	-0.08	-0.05	0.66***
POL	-0.10	-0.08	-0.06	0.10	-0.13	0.32*	1.00	0.34*	-0.04	-0.06	-0.07	-0.04	-0.06	-0.05	-0.11
POR	-0.08	-0.08	-0.07	-0.24	-0.06	-0.04	0.35*	1.00	-0.06	-0.03	-0.07	0.42*	-0.15	-0.11	0.52
SA	-0.07	-0.08	-0.06	0.07	-0.06	-0.02	-0.02	-0.08	1.00	-0.05	0.49*	-0.04	-0.06	-0.04	0.08
SLO	-0.03	-0.05	-0.03	0.14	-0.03	-0.10	-0.10	-0.05	-0.05	1.00	-0.08	-0.05	-0.05	-0.06	-0.05
SPN	-0.16	0.21	-0.06	-0.05	-0.12	0.30	0.33*	-0.04	-0.01	-0.10	1.00	0.27	-0.09	-0.07	0.01
SWE	-0.07	0.47*	-0.07	-0.23	-0.07	-0.07	-0.09	-0.14	-0.05	-0.04	0.17	1.00	-0.06	-0.10	-0.04
TUR	-0.14	0.13	-0.12	-0.25	-0.04	-0.14	-0.17	0.10	-0.12	-0.06	0.17	-0.20	1.00	0.29	-0.05
UK	0.46	-0.06	-0.05	0.13	0.74***	-0.09	-0.14	-0.06	0.00	-0.03	-0.10	-0.07	-0.09	1.00	-0.04
ARG	-0.03	-0.11	-0.06	0.12	-0.05	0.22	-0.08	-0.04	0.55***	-0.05	-0.07	-0.12	-0.14	-0.10	1.00
CHL	-0.05	-0.05	-0.05	0.27	-0.03	-0.06	-0.07	-0.07	-0.05	-0.01	0.00	-0.07	-0.05	0.02	-0.06
CHN	-0.07	-0.08	0.36*	-0.12	0.00	-0.07	-0.10	0.33	-0.01	-0.05	-0.08	-0.11	0.05	0.41*	-0.11
IND	-0.05	0.30	-0.05	-0.39	-0.04	-0.06	-0.07	-0.13	0.00	-0.02	0.33*	0.65***	-0.11	-0.04	-0.06
IDO	-0.04	-0.10	1.0***	0.06	-0.05	-0.06	-0.06	-0.06	-0.06	-0.03	-0.06	-0.07	-0.13	-0.04	-0.06
JAP	-0.05	-0.06	-0.04	-0.46*	-0.02	-0.04	-0.04	-0.05	-0.05	-0.02	-0.05	-0.06	0.31	-0.03	-0.04
MLY	-0.06	-0.07	0.01	0.01	-0.05	-0.06	0.04	0.07	-0.05	-0.05	-0.07	-0.08	-0.12	-0.06	-0.07
MEX	-0.11	-0.15	-0.07	-0.01	-0.07	-0.16	-0.13	-0.05	-0.15	0.45***	-0.18	-0.16	0.02	-0.08	-0.14
PER	-0.04	0.00	-0.04	0.04	-0.04	0.54***	-0.05	-0.05	0.05	-0.02	-0.05	-0.07	-0.08	-0.04	0.00
RUS	0.03	-0.12	-0.05	-0.21	0.06	-0.01	-0.08	0.00	-0.06	-0.03	-0.13	-0.12	-0.07	0.02	-0.06
SK	-0.10	-0.11	-0.10	0.07	-0.04	-0.09	-0.06	-0.02	0.01	-0.02	0.42	-0.11	0.24	-0.04	-0.05
SL	-0.05	0.35*	-0.10	-0.19	-0.03	-0.07	-0.12	-0.07	-0.05	-0.03	-0.11	-0.15	0.24	-0.05	-0.10
THA	-0.12	0.03	-0.13	-0.21	-0.06	0.07	-0.16	0.19	-0.15	0.38*	0.03	-0.02	0.02	-0.09	0.05
TUN	-0.03	-0.10	-0.02	-0.09	-0.03	-0.10	-0.04	-0.05	-0.04	-0.03	-0.04	-0.10	0.37*	-0.03	-0.04
US	-0.11	0.16	-0.15	0.23	-0.08	0.13	0.15	-0.12	-0.03	-0.10	0.13	0.11	-0.21	0.22	-0.17

Where AUS represents Australia, AST = Austria, BEL = Belgium, CRO = Croatia, CZR = Czech Republic, DEN = Denmark, EST = Estonia, FIN = Finland, FRA = France, GER = Germany, GRE = Greece, HK = Hong Kong, HUN = Hungary, ICE = Iceland, IRE = Ireland, ITA = Italy, LUX = Luxembourg, MAL = Malta, NETH = Netherlands, NOR = Norway, PHI = Philippines, POL = Poland, POR = Portugal, SA = South Africa, SLO = Slovakia, SPN = Spain, SWE = Sweden, TUR = Turkey, and UK for United Kingdom.
Where ARG = Argentina, CHL = Chile, CHN = China, IND = India, IDO = Indonesia, JAP = Japan, MLY = Malaysia, MEX = Mexico, PER = Peru, RUS = Russia, SK = South Korea, SL = Sri Lanka, THA = Thailand, TUN = Tunisia, US and United States of America.
The Pearson correlation coefficients are calculated using monthly index returns. Upper half **(bold)** diagonal of the table contain the Post-adoption correlation coefficients whereas lower half shows the Pre-adoption correlation coefficients.
*, **, *** denote significance at the 10%, 5% and 1% significance levels respectively.

	CHL	CHN	IND	IDO	JAP	MLY	MEX	PER	RUS	SK	SL	THA	TUN	US
AUS	0.02	0.63***	-0.15	-0.10	0.36*	-0.05	-0.04	-0.06	-0.05	0.33*	-0.04	-0.10	-0.04	-0.10
AST	-0.06	0.15	0.10	-0.15	-0.13	-0.09	-0.04	-0.03	0.33	-0.11	-0.13	-0.09	-0.07	-0.11
BEL	-0.04	-0.12	-0.12	0.29	0.30	-0.04	-0.03	-0.05	-0.05	-0.06	-0.04	-0.06	-0.05	0.35*
CRO	-0.06	-0.10	-0.10	0.22	-0.10	0.38*	-0.05	-0.07	-0.08	-0.07	0.36*	-0.08	-0.06	-0.11
CZR	-0.05	0.16	-0.13	-0.08	0.19	-0.11	-0.04	-0.07	-0.10	-0.11	-0.06	-0.17	-0.11	-0.15
DEN	0.05	-0.09	-0.13	-0.01	-0.08	-0.05	-0.03	0.05	0.63	0.55	-0.05	-0.03	-0.06	-0.02
EST	-0.04	-0.08	-0.14	-0.12	0.23	-0.05	-0.03	0.02	-0.06	-0.09	-0.05	-0.10	-0.11	-0.05
FIN	-0.05	-0.12	-0.15	0.52**	-0.12	0.37*	-0.10	-0.07	0.35	0.29	0.34*	-0.08	0.33*	-0.11
FRA	-0.11	-0.13	-0.13	-0.08	-0.09	-0.10	-0.04	-0.13	-0.05	-0.07	-0.06	-0.14	-0.10	-0.11
GER	-0.06	-0.16	-0.18	0.17	0.14	-0.07	-0.12	-0.08	-0.11	-0.12	-0.07	0.15	0.25	0.24
GRE	-0.04	-0.08	-0.07	-0.09	-0.12	-0.09	-0.03	-0.06	-0.09	-0.05	0.55***	-0.08	-0.05	-0.13
HK	0.06	0.53***	-0.10	-0.12	0.50***	-0.05	-0.04	0.03	-0.06	0.52***	-0.04	-0.07	-0.05	-0.06
HUN	0.05	0.48**	-0.05	-0.14	0.50*	-0.05	0.06	0.04	0.02	0.52***	-0.05	-0.07	-0.05	-0.06
ICE	-0.04	-0.04	0.35*	-0.08	-0.09	-0.05	-0.04	0.05	-0.06	-0.07	-0.05	0.42	0.74***	-0.07
IRE	-0.04	-0.09	-0.10	-0.08	0.22	-0.06	-0.04	0.02	-0.10	-0.10	0.00	-0.08	-0.06	-0.06
ITA	-0.03	-0.06	0.36*	-0.06	-0.06	0.02	-0.02	-0.04	0.05	-0.05	-0.06	-0.06	-0.04	0.01
LUX	-0.03	-0.01	-0.08	-0.07	0.00	-0.12	-0.03	-0.04	-0.05	0.00	-0.12	-0.06	-0.04	-0.05
MAL	-0.04	0.01	0.38*	-0.08	-0.03	0.01	-0.03	-0.05	-0.05	-0.07	0.02	-0.08	-0.05	-0.01
NTH	0.42**	0.05	0.01	-0.12	-0.15	-0.08	-0.06	0.43**	-0.12	-0.11	0.27	0.31	0.27	0.15
NOR	-0.05	-0.11	-0.14	-0.13	0.09	-0.07	-0.05	-0.03	-0.14	-0.11	0.34*	-0.12	-0.11	-0.08
PHI	-0.04	-0.09	-0.04	-0.08	-0.08	-0.06	-0.03	0.06	-0.04	0.00	-0.05	-0.08	-0.06	-0.06
POL	-0.04	-0.08	-0.11	-0.07	0.30	-0.11	-0.03	-0.06	-0.06	-0.06	-0.06	-0.10	-0.04	-0.11
POR	-0.05	0.20	-0.12	-0.15	0.55***	-0.06	-0.04	-0.07	0.42*	0.27	-0.10	-0.12	-0.06	-0.07
SA	-0.03	-0.07	-0.07	-0.06	-0.07	-0.12	-0.02	-0.03	-0.04	-0.05	-0.03	-0.12	-0.04	-0.12
SLO	-0.05	-0.06	-0.16	-0.05	-0.04	-0.05	-0.04	-0.06	-0.06	-0.04	-0.06	-0.12	-0.11	-0.07
SPN	-0.11	-0.16	0.16	0.15	-0.15	-0.10	-0.10	-0.12	-0.05	0.24	-0.05	-0.15	0.28	-0.14
SWE	-0.04	-0.08	-0.15	0.28	-0.07	-0.05	-0.10	-0.05	0.52***	-0.10	-0.10	-0.06	0.41*	-0.06
TUR	-0.01	0.07	-0.16	0.24	0.10	-0.07	-0.05	0.02	-0.14	-0.14	-0.11	-0.14	-0.11	-0.11
UK	-0.04	0.19	-0.12	-0.07	-0.08	-0.04	-0.11	0.02	-0.11	-0.07	-0.04	-0.10	-0.05	-0.10
ARG	-0.03	-0.07	-0.08	-0.07	0.46**	-0.05	-0.03	-0.04	-0.06	-0.05	-0.04	-0.07	-0.04	-0.07
CHL	1.00	0.44**	-0.07	-0.06	-0.05	-0.05	-0.02	0.97***	-0.04	-0.04	-0.04	-0.06	-0.04	-0.05
CHN	-0.06	1.00	0.03	-0.16	0.16	-0.07	-0.05	0.37*	-0.12	0.15	-0.07	-0.15	-0.07	-0.17
IND	-0.05	-0.10	1.00	-0.16	-0.22	-0.09	0.40**	-0.05	-0.10	0.19	-0.08	0.04	0.21	-0.12
IDO	-0.05	0.37	-0.06	1.00	0.13	0.31	-0.09	-0.02	-0.11	-0.11	0.28	-0.09	0.26	0.18
JAP	-0.04	-0.05	-0.05	-0.04	1.00	-0.07	-0.06	-0.08	-0.12	0.18	-0.07	-0.12	-0.10	0.21
MLY	-0.06	-0.01	-0.05	0.01	-0.04	1.00	-0.03	-0.05	-0.05	-0.06	0.44*	0.31	-0.06	0.35*
MEX	-0.09	-0.09	-0.10	-0.08	-0.05	0.38*	1.00	-0.03	-0.03	-0.03	-0.04	-0.04	-0.10	-0.04
PER	-0.04	-0.05	-0.04	-0.05	-0.03	-0.05	-0.12	1.00	-0.06	-0.06	-0.05	-0.02	0.03	-0.06
RUS	-0.05	-0.05	-0.13	-0.05	0.06	-0.05	0.35*	0.07	1.00	0.37*	-0.10	-0.06	-0.05	-0.06
SK	0.03	-0.07	-0.06	-0.10	-0.04	-0.04	-0.11	-0.04	-0.06	1.00	-0.05	-0.12	-0.06	-0.07
SL	-0.05	-0.06	-0.11	-0.10	-0.04	-0.05	0.22	0.02	0.67***	-0.05	1.00	-0.07	-0.04	-0.10
THA	0.28	0.04	0.11	-0.13	-0.07	0.31	0.40**	-0.09	-0.14	-0.13	-0.16	1.00	0.32*	0.54***
TUN	-0.04	-0.04	-0.04	-0.04	-0.01	-0.04	0.44**	-0.13	-0.04	-0.03	-0.03	0.27	1.00	-0.06
US	-0.05	0.16	-0.09	-0.14	-0.07	-0.10	0.03	-0.08	-0.09	0.15	-0.09	-0.22	-0.10	1.00

Where AUS represents Australia, AST = Austria, BEL = Belgium, CRO = Croatia, CZR = Czech Republic, DEN = Denmark, EST = Estonia, FIN = Finland, FRA = France, GER = Germany, GRE = Greece, HK = Hong Kong, HUN = Hungary, ICE = Iceland, IRE = Ireland, ITA = Italy, LUX = Luxembourg, MAL = Malta, NTH = Netherlands, NOR = Norway, PHI = Philippines, POL = Poland, POR = Portugal, SA = South Africa, SLO = Slovakia, SPN = Spain, SWE = Sweden, TUR = Turkey, and UK for United Kingdom.
Where ARG = Argentina, CHL = Chile, CHN = China, IND = India, IDO = Indonesia, JAP = Japan, MLY = Malaysia, MEX = Mexico, PER = Peru, RUS = Russia, SK = South Korea, SL = Sri Lanka, THA = Thailand, TUN = Tunisia, US and United States of America.
The Pearson correlation coefficients are calculated using monthly index returns. Upper half (**bold**) diagonal of the table contain the Post-adoption correlation coefficients whereas lower half shows the Pre-adoption correlation coefficients.
*, **, *** denote significance at the 10%, 5% and 1% significance levels respectively.

Table 10 describes the results of Pearson correlation matrices of the group C countries.

The table is divided diagonally into two parts, the upper diagonal **(bold)** part shows the Post-IFRS correlations while lower diagonal provides the Pre-IFRS adoption correlations. Further, the table is divided into 4 quarters by one horizontal and one vertical line.

1st quarter Table 3c exhibits the correlation coefficients of adopters' vs adopter countries, it is clear that there are no significant correlations between the adopters' countries except Brazil and Romania are significantly negatively correlated (-0.96) during the post-adoption period. 4th quarter shows the non-adopters vs non-adopters, from 4th quarter, India and Japan correlation coefficient is 0.43 during the pre-adoption period, and Tunisia vs US correlation is 0.45 in post-adoption period. From the 3rd quarter (adopters' vs non-adopters pre-adoption), Israel and Malaysia have -0.43 correlation, US and Romania have 0.48 correlation during the pre-adoption period. Overall the correlation coefficients are very small and insignificant between all groups and times periods.

Table 11 exhibit correlation coefficients matrices of the group D countries monthly returns. 1st quarter exhibits the correlation coefficients of adopters' vs adopter countries, detailed inspection shows that there is no correlation between the adopters during pre and post IFRS adoption period. 4th quarter shows the correlations between non-adopters vs non-adopters, there is no significant correlation between both pre and post-adoption periods except China vs Indonesia have 0.45 correlation during the post-adoption period. The 2nd and 3rd quarters represent the correlations between the adopters' vs non-adopters in the pre and post IFRS adoption periods respectively. Mexico and India have 0.40 correlation coefficient in the pre-adoption period while Sri Lanka vs Indonesia has 0.44 during post-adoption. Rest of the countries pairs don't have any correlation.

Table 10: Correlation coefficients for the Pre and Post Adoption Periods (Group C)

	BRA	CAN	CHL	ISR	ROM	IND	JAP	MAL	SK	US
BRA	**1.00**	**-0.04**	**-0.06**	**-0.04**	**-0.96*****	**-0.07**	**-0.06**	**-0.26**	**0.67*****	**-0.05**
CAN	0.25	**1.00**	**-0.06**	**0.06**	**0.13**	**-0.05**	**-0.05**	**0.26**	**-0.04**	**-0.05**
CHL	-0.16	-0.06	**1.00**	**-0.07**	**0.16**	**0.10**	**-0.08**	**0.12**	**-0.10**	**0.33****
ISR	-0.33**	-0.03	-0.05	**1.00**	**0.06**	**-0.07**	**-0.11**	**0.04**	**-0.05**	**-0.05**
ROM	0.12	-0.11	-0.15	-0.10	**1.00**	**0.01**	**0.01**	**0.28***	**-0.64*****	**0.11**
IND	0.13	-0.06	-0.10	-0.05	0.10	**1.00**	**0.23**	**0.29***	**-0.07**	**-0.06**
JAP	-0.19	-0.10	-0.13	-0.05	0.37	0.43**	**1.00**	**-0.01**	**-0.10**	**-0.06**
MAL	0.35**	-0.03	-0.14	-0.43**	-0.08	-0.09	-0.37**	**1.00**	**-0.09**	**-0.07**
SK	-0.16	-0.10	-0.04	-0.10	0.17	-0.13	-0.09	-0.28***	**1.00**	**-0.10**
US	-0.21	-0.12	-0.16	0.37**	0.48**	0.06	0.09	-0.20	0.09	**1.00**

*,**,*** denote significance at the 10%, 5% and 1% significance levels respectively
Where BRA represents Brazil, CAN = Canada, CHL = Chile, ISR = Israel, ROM = Romania, IND = India, JAP = Japan, MLY = Malaysia, SK = South Korea, and US for United States of America.
The Pearson correlation coefficients are calculated using monthly index returns. Upper half **(bold)** diagonal of the table contain the Post-adoption correlation coefficients whereas lower half shows the Pre-adoption correlation coefficients.

Table 11: Correlation coefficients for the Pre and Post Adoption Periods

(Group D)

	ARG	MEX	PER	RUS	SL	THA	CHN	IDO	IND	JAP	SK	TUN
ARG	**1.00**	**-0.10**	**-0.06**	**-0.13**	**-0.04**	**-0.06**	**-0.11**	**-0.14**	**-0.12**	**-0.13**	**0.25**	**-0.09**
MEX	-0.03	**1.00**	**-0.04**	**0.13**	**-0.02**	**0.03**	**-0.12**	**-0.16**	**0.37****	**-0.11**	**0.07**	**-0.12**
PER	-0.04	-0.03	**1.00**	**-0.04**	**-0.04**	**-0.03**	**-0.05**	**-0.10**	**-0.06**	**-0.05**	**0.03**	**-0.04**
RUS	-0.06	-0.03	-0.06	**1.00**	**-0.08**	**-0.03**	**-0.11**	**-0.16**	**0.14**	**-0.16**	**0.06**	**-0.14**
SL	-0.04	-0.04	-0.05	-0.10	**1.00**	**-0.05**	**-0.07**	**0.44****	**-0.08**	**-0.09**	**0.01**	**-0.12**
THA	-0.07	-0.04	-0.02	-0.06	-0.07	**1.00**	**-0.12**	**-0.13**	**-0.04**	**-0.13**	**0.04**	**-0.12**
CHN	-0.07	-0.05	0.37**	-0.12	-0.07	-0.15	**1.00**	**0.45****	**-0.12**	**0.18**	**0.05**	**0.25**
IDO	-0.07	-0.09	-0.02	-0.11	0.28*	-0.09	-0.16	**1.00**	**0.08**	**0.29***	**0.11**	**0.14**
IND	-0.08	0.40*	-0.05	-0.10	-0.08	0.04	0.03	-0.16	**1.00**	**0.09**	**0.11**	**-0.10**
JAP	0.46**	-0.06	-0.08	-0.12	-0.07	-0.12	0.16	0.13	-0.22	**1.00**	**0.23**	**0.15**
SK	-0.05	-0.03	-0.06	0.37**	-0.05	-0.12	0.15	-0.11	0.19	0.18	**1.00**	**-0.06**
TUN	-0.04	-0.10	0.03	-0.05	-0.04	0.32**	-0.07	0.26	0.21	-0.10	0.06	**1.00**

Where ARG represents Argentina, MEX = Mexico, RUS = Russia, SL = Sri Lanka, THA = Thailand, PER = Peru. CHN represents China, IND = India, IDO = Indonesia, JAP = Japan, SK = South Korea, and TUN for Tunisia.
The Pearson correlation coefficients are calculated using monthly index returns. Upper half **(bold)** diagonal of the table contain the Post-adoption correlation coefficients whereas lower half shows the Pre-adoption correlation coefficients.
*, **, *** denote significance at the 10%, 5% and 1% significance levels respectively.

4.4   Results of Beta Convergence Analysis

Beta convergence measures the speed with which differences in stock returns are eliminated for an individual stock against a selected base (benchmark stock return).

$$\Delta R_{i,t} = a_i + \beta R_{i,t-1} + \sum_{l=1}^{L} \gamma \Delta R_{i,t-l} + \gamma C_{i,t} + \varepsilon_{i,t} \qquad \textbf{\textit{Equation 11}}$$

Where $\Delta R_{i,t}$ denotes a spread (difference) in returns on market index between country i and a benchmark market at time t; C represent control variables, and l represents lag. γ measures lagging effects from $\Delta R_{i,t-l}$, in previous periods.

To calculate the beta convergence two benchmarks are developed, i.e. an average of adopters' and non-adopters' countries returns. Beta convergence using the average of adopters provides the speed with which adopter countries converge to the average of adopters returns and also in control group the non-adopters speed to converge to an average of adopters. Similarly, the average of non-adopters is taken as a base for both treatment and control groups. Using the average of the group as a benchmark has two benefits, first all the countries are taken into the analysis, if one country is taken as a benchmark its difference with benchmark will be zero and it is excluded from the panel regression. Secondly, we can compare the convergence of the treatment and control groups with each other.

The size of coefficient β is a direct measure of the speed of convergence. A negative beta coefficient indicates the occurrence of convergence. The β coefficient can take values ranging from -2 to 0. The closer the β coefficient to -1, the faster the rate of convergence. If $\beta = 0$ or $\beta = -2$, no convergence is observed. β values from -1 to 0 indicate monotonous convergence, while oscillating convergence occurs for β values from -2 to -1. The half-life is calculated as H-L = ln $(0.5)/\ln(|\beta + 1|)$ and expressed in a number of days. It represents the time in days during which shock in returns declines to one half between the returns and benchmark. Lower H-L values correspond to faster beta-convergence.

Table 12 exhibits the results of a beta convergence analysis. The column 2, 3 and 4 provides the results of adopters (treatment group) and column 5,6 and 7 provides the results of non-adopters (control group) for the three periods, overall, pre IFRS adoption and post IFRS adoption, respectively. There are four panels and each penal

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provides the result of each group. Beta coefficients, t-statistic (in brackets) and Half-life's for each group and time periods are provided respectively.

Table 12, Panel 1, shows the results of beta convergence of group A countries, both treatment (adopters) and control groups (non-adopters). The negative beta values indicate that there is a convergence between the markets. The adopter countries have negative beta coefficients for the overall (-0.025) and post adoption (-0.045) period with respect to adopters' average base. However, for the pre-adoption period coefficient is positive. It shows that adopters countries are converging during the overall and post-adoption periods but the speed of beta convergence is higher during the post-adoption period. The adopter countries have negative coefficients for the overall (-0.122) and pre-adoption (-0.437) but for the post-adoption period coefficient is positive, with respect to non-adopters' average base. It means adopter countries are converging to the non-adopter mean base during the pre-adoption period but in post-adoption, there is no convergence.

Panel 1, column 5, 6 and 7 exhibit the beta convergence of non-adopters with respect to adopters' average and non-adopters average benchmarks. The positive coefficients of beta with respect to adopters' average base shows no sign of convergence of non-adopters' countries to adopters' benchmark. While negative beta coefficient values for overall (-0.068), pre (-0.071) and post (-0.085) adoption period represents non-adopter countries are converging to the non-adopter benchmark during all the periods and the comparison of pre and post-adoption period shows that the speed of convergence slightly increased during the post-adoption period.

Beta convergence of Group B countries is given in the Panel 2, for both adopters (column 2,3 and 4) and non-adopters (column 5,6 and 7). The negative beta coefficients for overall (-0.012) and post adoption (-0.060) periods show the convergence of adopters to adopters' benchmark. For pre-adoption period coefficient is positive. It means adopter countries are converging to adopters' benchmark during the overall and post-adoption period and speed of convergence is higher in the post-adoption. There is no convergence during the pre-adoption period. The adopters' countries also have negative coefficient with respect to non-adopters' benchmark, -0.045, -0.055, and -0.037 for the overall, pre and post-adoption periods respectively which shows the convergence of adopter countries to the non-adopters' benchmark.

Comparing the pre and post-adoption period, the speed of convergence of the adopter countries with non-adopters' benchmark decreased during the post-adoption period.

Columns 5,6 and 7 of Panel 2, gives the results of non-adopters' countries. With respect to adopters' benchmark only in the post-adoption period, beta coefficient is negative (-0.141). with respect to non-adopters' benchmark, coefficients are negative for pre (-0.047) and post (-0.053) adoption. It means non-adopter countries have convergence with the adopters' benchmark only in the post-adoption period. While with the non-adopters' benchmark convergence speed slightly increased during the post IFRS adoption period.

Panel 3 provides the results of Group C countries beta coefficients. Columns 2, 3 and 4 exhibit the convergence of adopters' countries both with adopters' benchmark and non-adopters benchmark respectively. The negative coefficients for overall (-0.003) and pre-adoption (-0.007) shows the convergence of adopters group to the adopters' benchmark, however, there is no convergence during the post-adoption period. With respect to the non-adopters' benchmark only the coefficient for the overall period is negative (-0.032), means for the overall period the adopters converge to the non-adopters' benchmark, however, not for sub-periods. Columns 5, 6 and 7 shows the convergence of non-adopters. The negative coefficients for pre-adoption (-0.478) and post adoption (-0.22) with respect to adopters' benchmark represent the convergence of non-adopters' countries to the adopters' benchmark during pre and post-adoption IFRS. However, the speed of convergence decreased during the post-adoption period. All the coefficient of non-adopters with the non-adopters' benchmark is positive so no convergence.

Table 12: Beta convergence (Panel, cross-section fixed effects)

	Adopters			Non Adopters		
	Overall	**Pre**	**Post**	**Overall**	**Pre**	**Post**
Panel 1: Group A						
	Base: Adopters					
B	-0.025	0.212	-0.045	0.137	0.208	0.016
	(-0.23)	(0.99)	(-0.27)	(1.55)	(0.37)	(0.09)
H-L	28	-4	15	-5	-4	-45
	Base: Non-Adopters					
B	-0.122	-0.437	0.529	-0.068	-0.071	-0.085
	(-0.40)	(-2.38)*	(0.46)	(-0.60)	(-0.38)	(-0.43)
H-L	5	1	-2	10	9	8
Panel 2: Group B						
	Base: Adopters					
B	-0.012	0.001	-0.060	0.537	0.028	-0.141
	(-0.12)	(0.00)	(-0.36)	(1.43)	(0.10)	(-0.83)
H-L	59	-763	11	-2	-25	5
	Base: Non-Adopters					
B	-0.045	-0.055	-0.037	0.006	-0.047	-0.053
	(-1.17)	(-0.32)	(-0.23)	(0.07)	(-0.24)	(-0.40)
H-L	15	12	18	-117	14	13
Panel 3: Group C						
	Base: Adopters					
B	-0.003	-0.007	0.018	0.033	-0.478	-0.220
	(-0.03)	(-0.05)	(0.09)	(0.35)	(-2.61)*	(-0.98)
HL	237	96	-39	-22	1	3
	Base: Non-Adopters					
B	-0.032	0.459	0.849	0.012	0.000	0.015
	(-0.15)	(0.72)	(0.76)	(0.14)	(0.00)	(0.10)
HL	21	-2	-1	-57	-1457	-47
Panel 4: Group D						
	Base: Adopters					
B	-0.021	-0.163	-0.063	-0.087	-0.049	-0.053
	(-0.19)	(-0.93)	(-0.33)	(-0.70)	(-0.27)	(-0.28)
HL	33	4	11	8	14	13
	Base: Non-Adopters					
B	-0.196	-0.320	0.226	0.091	0.222	0.004
	(-0.46)	(-0.63)	(0.40)	(0.82)	(1.20)	(0.03)
HL	3	2	-3	-8	-3	-169

Throughout the manuscript, *,**,*** denote significance at the 10%, 5% and 1% significance levels respectively

$\Delta R_{i,t} = a_i + \beta R_{i,t-1} + \sum_{l=1}^{L} \gamma \Delta R_{i,t-1} + C_{i,t} + \varepsilon_{i,t}$

where $\Delta R_{i,t}$ denotes change in returns on market index between country i and a benchmark market at time t, and l represents lag. C represents the control variables.

Control variables for the economy and capital markets determinates.
1. Economic growth
2. Inflation
3. Market capitalization to GDP
4. Number of listed companies
5. Interest rates (real)
6. Foreign Direct investments
7. Government debts

Control variable to account for the changes in legal and risk environment of the country.
1.   Rule of Law (a proxy for legal barriers) from the World Governance Indicators.
2.   Market openness (a proxy for risk) Chin-Ito openness index.
3.   Economic Freedom Index from the Heritage Foundations.
4.   The volatility of foreign exchange rates.

The size of coefficient β is a direct measure of the speed of convergence. A negative beta coefficient indicates the occurrence of convergence. The β coefficient can take values ranging from –2 to 0. The closer the β coefficient to –1, the faster the rate of convergence. If β = 0 or β = –2, no convergence is observed. β values from –1 to 0 indicate monotonous convergence, while oscillating convergence occurs for β values from –2 to –1.
The half-life is calculated as $H\text{-}L = \ln(0.5)/\ln(|\beta + 1|)$ and expressed in number of days. It represents the time in days with which shock in returns declines to one half between the returns and benchmark. Lower H-L values correspond to faster beta-convergence.

Panel 4 exhibits the beta convergence of Group D countries. From column 2, 3, and 4, the negative coefficients for overall (-0.021), pre (-0.163) and post adoption (-0.063) shows that the adopter's group is converging to the adopters' benchmark. However, comparison of pre-adoption with post-adoption shows that speed of convergence decreased after IFRS adoption. The overall (-0.196) and pre (-0.320) adoption period coefficient of adopters with respect to non-adopter benchmark are negative but post-adoption is positive. So the adopter's group is converging to non-adopters' benchmark during overall and pre-adoption periods but not during post-adoption. Columns 5, 6, and 7, represents the convergence of non-adopter group with the adopters and non-adopter benchmarks. The negative coefficients for overall (-0.087) Pre (-0.049) and Post (-0.053) adoption periods shows that non-adopters are converging to the adopter's benchmark during all the three periods. However, all the coefficients with respect to the non-adopters base are positive, which shows no convergence.

Overall, the absolute values of beta are small and less than 1, which shows the slow and monotonic speed of convergence. The half-life, defined as the period during which the magnitude of the shock reduced to half varies is minimum 1 day and maximum 237 days. Moreover, apart from two, rest of the coefficients p-values show that results are not statistically significant. Hence, results fail to reject the null hypothesis that IFRS has no impact on the integration of capital markets. Findings of the current study are contradictory to the (Yan et al., 2013) and (F. Cai & Wong, 2010), they found a positive impact of IFRS on the capital market integration.

4.5 Results of Sigma Convergence Analysis

Sigma (σ) convergence employs the cross-sectional standard deviation of returns across countries at each time. Sigma-convergence increases as the sigma value fall to zero. If the cross-sectional dispersion converges to zero, perfect integration is achieved. It is calculated as follows:

$$\sigma_t = [\frac{1}{n-1}\sum(R_{i,t} - \overline{R_t})^2]^{\frac{1}{2}} \qquad \text{Equation 12}$$

Where n represents a number of the countries, $R_{i,t}$ represents a return on the stock index in country i at time t, and (R_t) identifies an average return in all markets at time t. In theory, perfect convergence is realized when sigma stays at zero.

To measure the effect of IFRS adoption on the capital markets convergence following difference in difference model has been utilized. If the treatment group (adopters) is represented by "T" and control group (non-adopters) by "C". The following equation will give the incremental effect of IFRS adoption.

$$\sigma = \beta_0 + \delta_0 d_2 + \beta_1 dT + \delta_1 d2.dT + \mu \qquad \text{Equation 13}$$

Where σ is the sigma convergence, dT is dummy variable, its value is "1" if it is treatment group "0" otherwise. d2 is dummy variable for the time, 2 represents post-IFRS adoption period. μ represents the other factors. δ_1 will give us the effect of IFRS adoption on the sigma convergence, it is also called the difference-in-difference estimator. δ_1 can be estimated in the following way as well.

$$\delta_1 = (\overline{\sigma}_{2,T} - \overline{\sigma}_{2,C}) - (\overline{\sigma}_{1,T} - \overline{\sigma}_{1,C}) \qquad \text{Equation 14}$$

where bar represents the averages and the first subscript denotes the time and second denotes the group.

Note that the two convergence methods capture different aspects of market integration: beta convergence measures the speed with which difference in returns are eliminated in a fixed time framework, while sigma convergence focuses whether markets are moving toward integration over time or not. Moreover, the presence of beta convergence does not imply that there is sigma convergence, there can be the case with beta convergence and sigma divergence (Quah, 1993; Sala-i-Martin, 1996). Therefore, both aspects of convergence are measured to analyze the integration of capital markets.

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The concept of beta and sigma convergence has been adopted from the growth economics literature and used by a number of studies to measure the integration of markets, especially in the context of capital market integration in the European Union (EU). Adam et al. (2002) apply beta and sigma convergence to 10-year bond yields and interbank rates, mortgage rates and corporate loans rates of the EU countries and found that integration between European countries has been increasing after 1999. Babetskaia-Kukharchuk et al. (2008) assess the capital market integration of the new EU member states i.e Czech Republic and Hungary, by using above indicators and found positive evidence. Apart from EU some other studies about regional market integration have also used methodologies like Espinoza et al. (2010) to measure interest rate convergence in the Gulf Cooperation Council (GCC). Yabara (2012) measure the capital market integration of East African countries. Babecký et al. (2013) have analyzed the convergence of Chinese and Russian Stock markets.

Figure number 8 illustrates the results of sigma-convergence analysis of all four groups. In each group, the solid line represents the sigma convergence of adopters' while the dotted line represents the non-adopters. The light shaded area represents the adoption years while the dark shaded area represents the financial crisis. From the graphical inspection of group A, one can observe a slight increase in the sigma convergence of non-adopters while convergence between the adopters decreased in the post-adoption period. However, adopters convergence has been sharply increasing in 2007. Probably there are some implementation and learning issues initially between adopter countries that has been resolved over the time.

Figure 8: Graph of sigma convergence
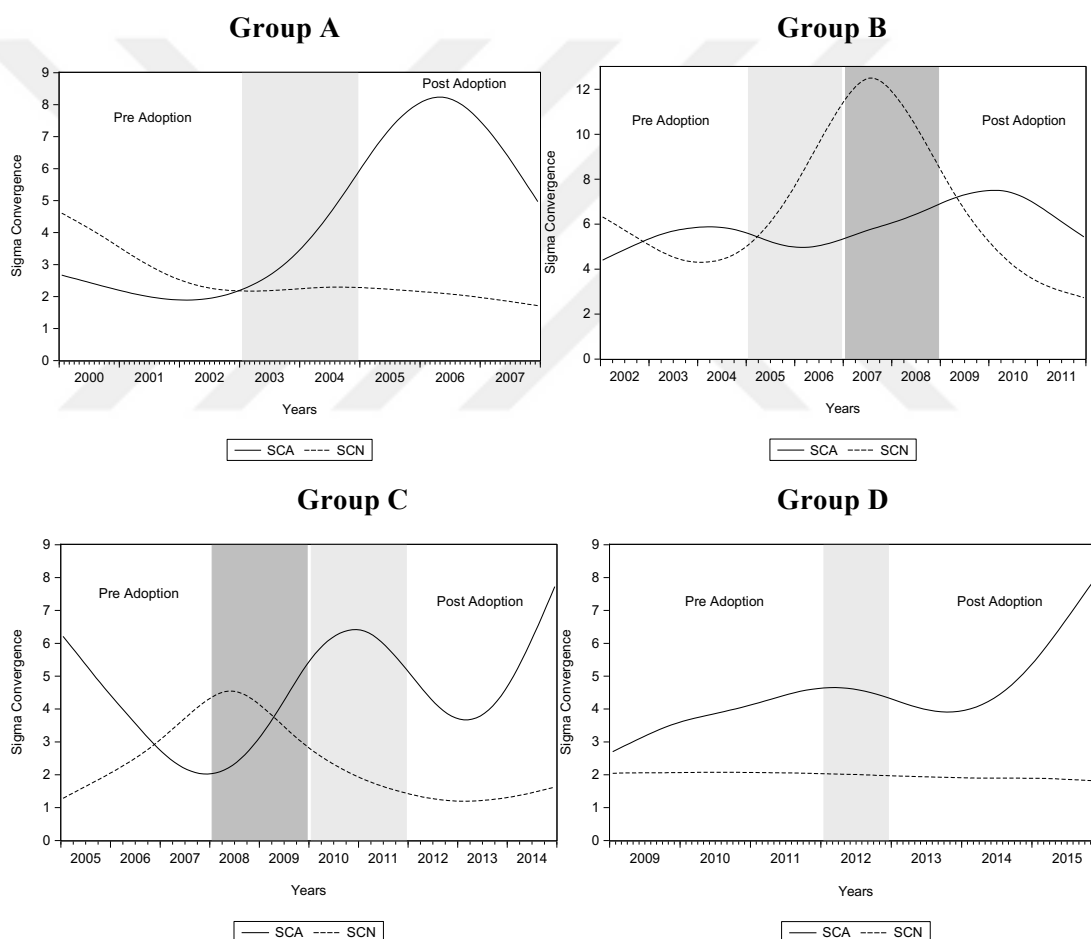
Source: Author calculations based on Thomson Reuters data.

Notes 1: Where SCA represents the sigma convergence of the adopters, and SCN represents the sigma convergence of non-adopters.

Notes 2: Trend values obtained by means of the H-P filter with the smoothing parameter λ=14400. The H-P filter is used only for graphs.

Notes 3: The light shaded area represents the adoption years while the dark shaded area represents the financial crisis., Period before that is Pre-IFRS adoption and after is Post-IFRS adoption.

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For group B, the trend in the convergence of adopters is almost same in both pre and post IFRS adoption while non-adopters convergence first decreased during the adoption years and financial crisis then it increased in post-adoption period. Again the convergence between the adopters has been decreased soon after IFRS adoption but later it started increasing. Similarly, in groups, C adopters integration decreased after adoption and then slightly increased while non-adopters are diverging during the adoption period and then start converging sharply. Likewise in group D adopters' integration slightly decreased in the post-adoption period while non-adopters increased.

The difference in difference regression provides the further result of comparison between the adopters and non-adopters.

Table 13: Difference in difference of Sigma Convergence

	Coef.	Std.Err	P>|t|
Group A	5.070	1.912	0.009
Group B	1.649	2.082	0.429
Group C	2.076	2.448	0.397
Group D	0.284	2.196	0.897

$$\sigma_t = [\frac{1}{n-1}\sum(R_{i,t} - \overline{R_t})^2]^{\frac{1}{2}}$$

$$y = \beta_0 + \delta_0 d_2 + \beta_1 dT + \boldsymbol{\delta_1} d2. dT + \mu$$

From the Table 13, it is clear that sigma convergence decrease in all the four groups. However, the p-values suggest that only the difference in the first group is significant. Overall from the sigma-convergence, it is concluded that IFRS adoption does not have any significant positive impact on the integration of capital markets.

4.6   Results discussion

Results of previous three sections that is Pearson correlation coefficient, Beta convergence, and sigma convergence fails to reject the null hypothesis that IFRS have a significant positive impact on the integration of capital markets. There is no clear trend in the correlation coefficient of pre and post-adoption periods. Correlations between some countries pairs increased in the post-adoption period while in some it decreased in the post-adoption period. Overall, there is mixed evidence with respect to correlation. There is an increase in the beta convergence of groups in the post adoption with the adopters' base. However, this positive evidence is not uniform across all the groups and apart from the few rest of the beta convergence values have non-significant p-values in all four groups. The difference in difference regression results of sigma convergence shows a decrease in sigma convergence in all four groups however results of only group A are significant.

Findings of the current study are consistent with Alnodel (2014) who also found no significant impact of IFRS adoption on CMI. However, contradictory to the F. Cai and Wong (2010) and Yan et al. (2013) who found a positive association between IFRS adoption and CMI. F. Cia and Wong (2010) used a sample of G8 countries (four adopted IFRS at the same time and 4 non-adopters' countries). Although they found an increase in integration after adopting IFRS yet their sample is not representative (biased) it includes only developed countries moreover, the research design did not account for the other confounding factors. Similarly, Yan et al. (2013) used the firm level data of mandatory adopting firms from 38 developed countries who adopted IFRS in 2005. They used the reaction to the global news as a measure of integration. They found the positive evidence due to sample selection and choice of integration measure. The current study included all the countries with capital markets into sample starting from the earliest adoption date to recent. Hence a diverse sample of 56 countries. Used the country-level data and adopted the beta and sigma convergence measures of integration which are widely used in capital market integration studies.

Even though prior studies suggest that adoption of IFRS result in increased comparability (Ashbaugh & Pincus, 2001; Barth et al., 2012; Cascino & Gassen,

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2015; Hong et al., 2014), transparency (Horton et al., 2013; J. P. Preiato et al., 2013), market liquidity, decreased cost of capital (Daske et al., 2008; Li, 2010) and increased cross border investment (L. Chen et al., 2015; DeFond et al., 2011; Florou & Pope, 2012; Gwen Yu & Wahid, 2014) (Messod D. Beneish et al., 2015). Yet, these impacts are not uniform across all the countries and are not strong enough to remove the informational barriers between the markets and harmonize them.

IFRS adoption does not ensure accounting harmonization and its positive impact, more than 110 countries adopt IFRS but still, there is difference in their accounting system (Nobes, 2006 & 2013). Prior research points out different reasons behind the diversification of accounting systems even after adopting same accounting standards. Nobes (2013) explain eight reasons why the IFRS adopting countries have differences in their accounting systems. These are implementation and complying differences; different monitoring and enforcement mechanisms; reporting incentives; language and translation issues; Gaps in IFRS, measurement estimations, and first-time adoption; and Overt vs Covert options in IFRS.

Therefore, it is conjectured that probably IFRS adoption does not have a significant impact on the integration of capital markets because of the presence of above mentioned difference in accounting systems around the world. Even after adopting IFRS there are different implementation and compliance levels across the countries (Nobes, 2006 & 2013). Only a few developed economies directly comply with IASB-IFRS such as Israel and South Africa (Zeff & Nobes, 2010). Most of the countries (above 100) required or allowed the national or regional versions of IFRS (e.g. Australian and EU), not the IASB-IFRS as it (Nobes, 2013).

The audit quality, monitoring and enforcement of IFRS is a national issue. The IFRS adoption is not the guarantee of associated benefits unless properly enforced (Ball & AG, 2001). If the enforcement mechanisms are weak, even with the high-quality IFRS, the overall financial reporting quality will decrease (Ball, 2006; Ball et al., 2003; Hail et al., 2010). The countries which have strong enforcement mechanism positive effects of IFRS adoption are more evident over there (DeFond et al., 2011). The empirical evidence also confirms that the economic benefits of IFRS are more evident in the economies with the strong legal setup and stricter enforcement (Burgstahler et al., 2004; Daske et al., 2008; Francis, Khurana, & Pereira, 2005).

Therefore, the possible rationale behind the segregation of capital markets even though applying the same IFRS is the different enforcement levels in different countries.

Financial reporting is moulded by incentives and incentives are shaped by the institutional structures of the country (Ball, 2001). The apparent adoption of IFRS does not guarantee the alignment of reporting incentives. The differences in institutional structure and reporting incentive cause the different effects of IFRS in adopting countries. Ball (2006) and Nobes (2006) describe the incentives of the prepares and enforces are mostly local. Moreover, Principal based IFRS may provide the flexibility to the managers in the accounting choices that can be used as an opportunity for earning management (Barth et al. 2008). Therefore, even with the adoption of IFRS, there can be different reporting incentive which is a hurdle in achieving desired effects of IFRS.

Language and translation of IFRS are also considered as a barrier to acquiring desired output of IFRS adoption. While translating IFRS to local languages, certain terminologies lost their true sense (Evans, 2004; Zeff, 2007). Studies also evidenced the different learning and transition issues in the IFRS adoption (Nobes, 2013). Apart from the accounting bodies and IFRS adoption the non-accounting institutions of a country also impact on the outcomes of IFRS (Wysocki, 2011). Therefore, it is inferred that all above factors cause the diversity in accounting even after adopting the IFRS and it is an obstacle to the integration of capital markets.

Finally, previous studies evidenced the number of benefits associated with the adoption of IFRS such as an increase in transparency, accounting quality and comparability of financial statements. Reduction in the cost of capital, improvement in market liquidity and increase in cross-border investments. However, these benefits are not uniform across all the countries which adopted IFRS and maybe not strong enough to remove all the information related barriers. Therefore, capital markets are still segmented. IFRS adoption has no significant impact on the integration of capital markets. So the role of IFRS in removing Informational barriers to capital markets pointed out Bekaert (1995) is not very strong. Other institutional characteristic play major role in shaping the overall information environment of the country.

4.7   Robustness and sensitivity tests

4.7.1   Data frequency robustness

The stock index data used for the analysis is of monthly frequency. The data for the returns are also available in the daily and weekly frequencies. However, it is considered that daily and weekly data contains more noise than the monthly data. On the other hand, monthly data may lose some information due to the longer window. Hence to check the robustness of results, both beta and sigma convergence analysis are conducted by using the weekly frequency of returns data.

Table 14 reports the result of beta convergence with the weekly frequencies of returns and control variables. Similar to Table 12, the column 2, 3 and 4 provides the results of adopters (treatment group) and column 5,6 and 7 provides the results of non-adopters (control group) for the three periods, overall, pre IFRS adoption and post IFRS adoption, respectively. There are four panels and each penal provides the result of each group. Beta coefficients, t-statistic (in brackets) and Half-life's for each group and time periods are provided respectively.

To calculate the beta convergence two benchmarks are developed, i.e. an average of adopters' and non-adopters' countries returns.

The Findings of the beta convergence with weekly frequencies reveals that the absolute values of beta are small and less than 1, which shows the slow and monotonic speed of convergence. Beta coefficients of only five periods in all groups are statistically significant. Similar to monthly frequencies we fail to reject the null hypothesis that IFRS has no impact on the integration of capital markets.

In other words, findings of the study are robust to the weekly frequency.

Table 14: Beta convergence (Weekly returns)

	Adopters			Non Adopters		
	Overall	Pre	Post	Overall	Pre	Post
Panel 1: Group A						
Base: Adopters						
β	0.002	-0.011	0.010	0.055	-0.193	0.087
	(0.05)	(-0.15)	(0.16)	(1.09)	(-2.16)*	(1.19)
HL	-311	63	-70	-13	3	-8
Base: Non-Adopters						
β	-0.034	0.093	-0.156	-0.017	-0.045	-0.019
	(-0.751)	(1.25)	(-2.12)*	(-0.49)	(-0.84)	(-0.32)
HL	20	-8	4	39	15	36
Panel 2: Group B						
Base: Adopters						
β	0.013	0.013	-0.019	-0.027	-0.053	0.108
	(0.39)	(0.22)	(-0.31)	(-0.56)	(-0.60)	(1.19)
HL	-54	-53	36	26	13	-7
Base: Non-Adopters						
β	0.070	0.087	0.046	-0.011	0.014	-0.020
	(2.66)**	(1.68)	(1.02)	(-0.33)	(0.22)	(-0.36)
HL	-10	-8	-15	62	-50	34
Panel 3: Group C						
Base: Adopters						
β	0.000	0.000	0.000	-0.010	0.028	-0.050
	(0.003)	(-0.005)	(-0.003)	(-0.201)	(0.293)	(-0.559)
HL	-7567	2440	3808	71	-25	14
Base: Non-Adopters						
β	0.086	0.166	0.078	0.002	0.000	0.012
	(2.33)**	(2.41)**	(1.10)	(0.073)	(-0.006)	(0.205)
HL	-8	-5	-9	-310	2044	-57
Panel 4: Group D						
Base: Adopters						
β	0.004	0.001	0.013	-0.025	-0.034	0.044
	(0.115)	(0.011)	(0.192)	(-0.46)	(-0.430)	(0.49)
HL	-156	-1133	-52	27	20	-16
Base: Non-Adopters						
β	0.008	-0.032	-0.044	-0.001	0.014	-0.021
	(0.17)	(-0.47)	(-0.53)	(-0.02)	(0.24)	(-0.31)
HL	-82	21	15	679	-49	33

Throughout the manuscript, *,**,*** denote significance at the 10%, 5% and 1% significance levels respectively

$\Delta R_{i,t} = a_i + \beta R_{i,t-1} + \sum_{l=1}^{L} \gamma \Delta R_{i,t-l} + C_{i,t} + \varepsilon_{i,t}$

where $\Delta R_{i,t}$ denotes change in returns (weekly) on market index between country i and a benchmark market at time t, and l represents lag. C represents the control variables.

Control variables for the economy and capital markets determinates.
1. Economic growth
2. Inflation
3. Market capitalization to GDP
4. Number of listed companies
5. Interest rates (real)
6. Foreign Direct investments
7. Government debts

Control variable to account for the changes in legal and risk environment of the country.

1.   Rule of Law (a proxy for legal barriers) from the World Governance Indicators.
2.   Market openness (a proxy for risk) Chin-Ito openness index.
3.   Economic Freedom Index from the Heritage Foundations.
4.   The volatility of foreign exchange rates.

Figure 9 exhibits the graphs of Sigma Convergence of all four groups with weekly returns frequency. The dark shaded area represents the adoption years while the light shaded area represents the financial crisis. Similar to monthly sigma convergence analysis, non-adopters' convergence decreased in the post-adoption period in the group A. Adopters' integration slightly decreased in the post-adoption period while non-adopters increased compared to pre-adoption in group C. In group B and D have same trend in both periods with small fluctuations.

Figure 9 (1-4) Sigma Convergence (Weekly)
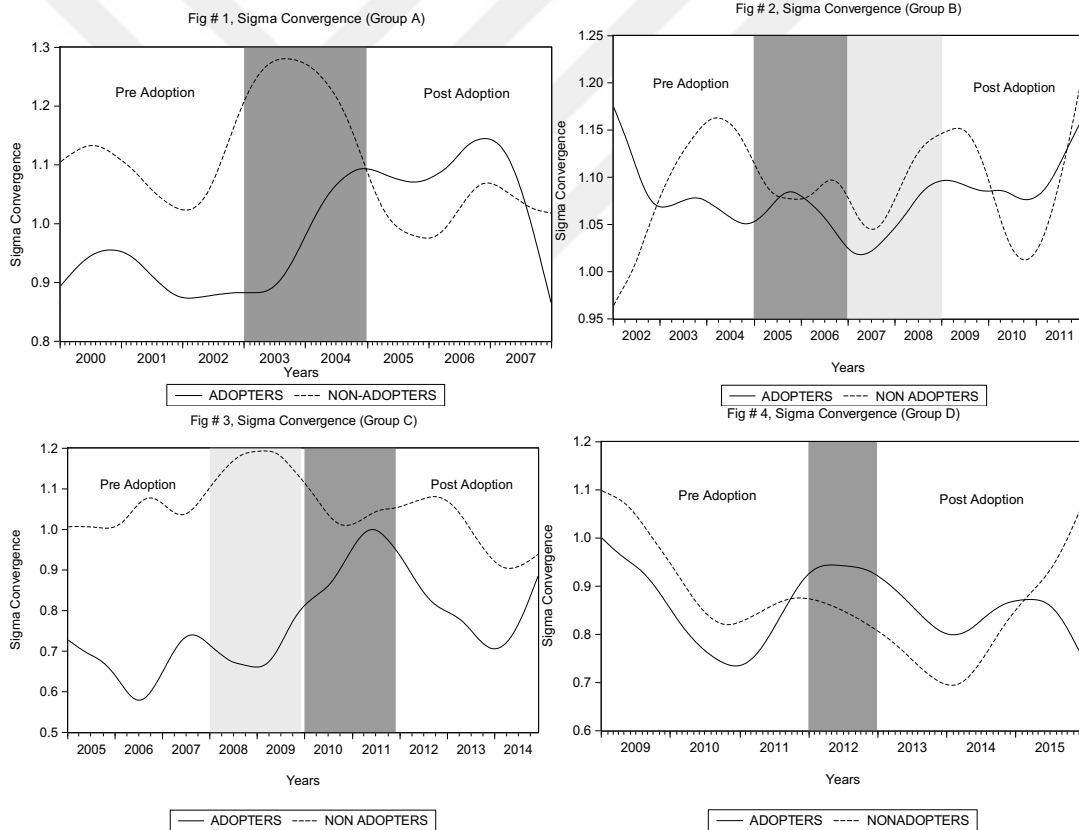
Notes 1: Trend values obtained by means of the H-P filter with the smoothing parameter λ=14400. The H-P filter is used only for graphs.
Notes 2: The light shaded area represents the adoption years while the dark shaded area represents the financial crisis., Period before that is Pre-IFRS adoption and after is Post-IFRS adoption.

Table 15 shows the results of difference in difference regression results of sigma convergence with weekly returns data. Results show an increase in sigma convergence in all groups but the only group A and C coefficient are significant.

Overall, it is concluded that the results of the study are robust to the frequency of data.

Table 15: Difference in difference regression of Sigma convergence (Weekly)

	Coef.	Std.Err	P>|t|
Group A	0.238	0.085	0.005
Group B	0.007	0.047	0.881
Group C	0.197	0.098	0.044
Group D	0.030	0.099	0.761

$$\sigma_t = [\frac{1}{n-1}\sum(R_{i,t} - \overline{R_t})^2]^{\frac{1}{2}}$$

$$y = \beta_0 + \delta_0 d_2 + \beta_1 dT + \boldsymbol{\delta_1} d2.\,dT + \mu$$

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4.7.2   Robustness of Classification, Benchmark and Period

The countries are classified into four groups of adopters and non-adopters set based on their adoption dates, market development, and income level. In order to check the sensitivity of results regarding the classification of the countries. The sample of the study is divided into a single group instead of four groups. All the adopters are classified into single group and non-adopters into another. To estimate the incremental impact of IFRS adoption on the CMI, the year in which country adopted IFRS is coded as zero for all the adopters and non-adopters' countries. and CMI of pre and post-adoption periods are estimated and compared.

Second, instead of using only three years as pre and post-adoption period. Beta and sigma convergence is also estimated for the four, and five years' period of pre and post-adoption to check the sensitivity of results for the longer time window.

Third, I used the average of adopters and non-adopters as a benchmark to measure the beta convergence. To check that the results are sensitive to benchmark, two of adopter countries (the UK and Australia) and two non-adopter countries (US and China) are also taken as a benchmark in beta convergence.

The Findings of beta convergence are given in the tables 16, 17 and 18 for the five, four and three post and pre periods respectively. The column 2, 3 and 4 provides the results of adopters (treatment group) and column 5,6 and 7 provides the results of non-adopters (control group) for the three periods, overall, pre IFRS adoption and post IFRS adoption, respectively.

There are six panels in each table each provides the result of the different benchmark. Panel 1 shows the results of beta convergence with respect to base average of adopter, Panel 2 = average of non-adopters, Panel 3 = UK, Panel 4 = US, Panel 5 = Australia, and Panel 6 = China.

Beta coefficients, t-statistic (in brackets) and Half-life's for each group and time periods are provided respectively.

Results from the table numbers 16, 17 and 18 show mixed evidence of beta convergence for different periods. With the change of pre and post-adoption period,

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there is slight increase and decrease in the beta convergence speed but directions are same. Using the UK and China as base provide an interesting trend in UK convergence with respect to adopters' countries vanished during the post-adoption period while in China it increased. The p-values show only a few beta values are significant.

Overall, the findings suggest that the results of the study are consistent even though we used different classification, time windows for pre and post adoption and benchmark basis.

Table 16: Beta convergence (5 Years pre and post) overall sample

	Adopters			Non Adopters		
	Overall	Pre	Post	Overall	Pre	Post
Panel 1: Base: Adopters						
β	-0.134	-0.127	-0.112	0.036	-0.203	0.247
	(-1.088)	(-1.008)	(-0.434)	(0.403)	(-1.478)	(1.926)
HL	5	5	6	-20	3	-3
Panel 2: Base: Non-Adopters						
β	-0.023	-0.063	-0.037	-0.125	0.118	-0.266
	(-0.588)	(-0.745)	(-0.574)	(-0.820)	(1.117)	(-1.043)
HL	30	10	18	5	-6	2
Panel 3: Base: UK						
β	0.035	-0.090	0.072	0.046	-0.359	0.267
	(1.033)	(-1.308)	(1.311)	(0.535)	(-2.82)***	(0.962)
HL	-20	7	-10	-15	1.5	-3
Panel 4: Base: US						
β	-0.069	-0.104	-0.087	-0.023	-0.066	0.059
	(-1.197)	(-1.812)	(-0.663)	(-0.466)	(-0.924)	(0.716)
HL	10	6	8	29	10	-12
Panel 5: Base: AUS						
β	-0.101	-0.189	-0.054	-0.138	-0.189	-0.072
	(-1.687)	(-3.263)	(-0.389)	(-2.46)***	(-2.47)***	(-0.700)
HL	6	3	12	5	3	9
Panel 6: Base: CHN						
β	-0.172	-0.091	-0.129	-0.080	-0.130	-0.028
	(-2.65)	(-1.108)	(-1.055)	(-1.115)	(-1.434)	(-0.269)
HL	4	7	5	8	5	24

Throughout the manuscript, *,**,*** denote significance at the 10%, 5%, and 1% significance levels respectively

$$\Delta R_{i,t} = a_i + \beta R_{i,t-1} + \sum_{l=1}^{L} \gamma \Delta R_{i,t-1} + C_{i,t} + \varepsilon_{i,t}$$

where $\Delta R_{i,t}$ denotes a change in returns on market index between country i and a benchmark market at time t, and l represents lag. C represents the control variables.

Control variables for the economy and capital markets determinates.
1. Economic growth
2. Inflation
3. Market capitalization to GDP
4. Number of listed companies
5. Interest rates (real)
6. Foreign Direct investments
7. Government debts

Control variable to account for the changes in legal and risk environment of the country.

1. Rule of Law (a proxy for legal barriers) from the World Governance Indicators.
2. Market openness (a proxy for risk) Chin-Ito openness index.
3. Economic Freedom Index from the Heritage Foundations.
4. The volatility of foreign exchange rates.

Table 17: Beta convergence (4 Years pre and post) overall sample

	Adopters			Non Adopters		
	Overall	Pre	Post	Overall	Pre	Post
Panel 1: Base: Adopters						
β	-0.205	-0.208	-0.176	0.094	-0.120	0.281
	(-1.318)	(-1.113)	(-0.607)	(0.936)	(-0.665)	(2.018)***
HL	3	3	3	-8	5	-3
Panel 2: Base: Non-Adopters						
β	-0.020	-0.058	-0.031	-0.140	0.125	-0.295
	(-0.472)	(-0.523)	(-0.438)	(-0.817)	(1.149)	(-0.983)
HL	34	11	22	4	-6	2
Panel 3: Base: UK						
β	0.031	-0.090	0.069	0.161	-0.010	0.266
	(0.864)	(-1.33)	(1.156)	(1.103)	(-0.090)	(0.805)
HL	-23	7	-10	-5	72	-3
Panel 4: Base: US						
β	-0.094	-0.134	-0.090	0.061	0.084	0.054
	(-1.598)	(-2.20)***	(-0.681)	(0.972)	(0.858)	(0.609)
HL	7	5	7	-12	-8	-13
Panel 5: Base: Australia						
β	-0.110	-0.211	-0.044	-0.046	-0.030	-0.101
	(-1.739)	(-3.195)	(-0.320)	(-0.631)	(-0.283)	(-0.887)
HL	5.933	2.918	15.375	14.815	22.562	6.532
Panel 6: Base: China						
β	-0.167	-0.068	-0.112	-0.013	0.017	-0.059
	(-2.439)	(-0.783)	(-0.860)	(-0.184)	(0.153)	(-0.505)
HL	4	10	6	52	-41	11

Throughout the manuscript, *, **, *** denote significance at the 10%, 5%, and 1% significance levels respectively

$$\Delta R_{i,t} = a_i + \beta R_{i,t-1} + \sum_{l=1}^{L} \gamma \Delta R_{i,t-1} + C_{i,t} + \varepsilon_{i,t}$$

where $\Delta R_{i,t}$ denotes a change in returns on market index between country *i* and a benchmark market at time *t*, and *l* represents lag. C represents the control variables.

Control variables for the economy and capital markets determinates.
1. Economic growth
2. Inflation
3. Market capitalization to GDP
4. Number of listed companies
5. Interest rates (real)
6. Foreign Direct investments
7. Government debts

Control variable to account for the changes in legal and risk environment of the country.

1. Rule of Law (a proxy for legal barriers) from the World Governance Indicators.
2. Market openness (a proxy for risk) Chin-Ito openness index.
3. Economic Freedom Index from the Heritage Foundations.
4. The volatility of foreign exchange rates.

Table 18: Beta convergence (3 Years pre and post) overall sample

	Adopters			Non Adopters		
	Overall	Pre	Post	Overall	Pre	Post
Panel 1: Base: Adopters						
β	-0.1250	-0.1390	-0.1185	0.1031	-0.1397	0.3821
	(-0.788)	(-0.663	(-0.395)	(0.910)	(-0.697)	(2.29)**
HL	5	4	5	-7	4	-2
Panel 2: Base: Non-Adopters						
β	-0.0234	0.0064	-0.0394	-0.2516	0.1657	-0.3705
	(-0.518)	(0.054)	(-0.518)	(-1.180)	(1.611)	(-0.984)
HL	29	-109	17	2	-4	1
Panel 3: Base: UK						
β	0.0352	-0.0618	0.0820	0.1624	0.0454	0.2442
	(0.945)	(-0.601)	(1.220)	(0.897)	(0.317)	(0.589)
HL	-20	11	-9	-4	-15	-3
Panel 4: Base: US						
β	-0.0898	-0.1063	-0.1112	0.0959	0.0959	0.0245
	(-1.476)	(-1.501)	(-0.993)	(0.882)	(0.882)	(0.249)
HL	7	6	6	-7	-7	-28
Panel 5: Base: Australia						
β	-0.1192	-0.2178	-0.0527	-0.0828	-0.0610	-0.1190
	(-1.901)	(-3.07)**	(-0.399)	(-1.023)	(-0.487)	(-0.936)
HL	5	3	13	8	11	5
Panel 6: Base: China						
β	-0.1092	0.0639	-0.0447	-0.0013	0.0920	-0.0194
	(-1.564)	(0.550)	(-0.369)	(-0.016)	(0.663)	(-0.146)
HL	6	-11	15	529	-8	35

Throughout the manuscript, *,**,*** denote significance at the 10%, 5% and 1% significance levels respectively
$\Delta R_{i,t} = a_i + \beta R_{i,t-1} + \sum_{l=1}^{L} \gamma \Delta R_{i,t-1} + C_{i,t} + \varepsilon_{i,t}$

where $\Delta R_{i,t}$ denotes a change in returns on market index between country *i* and a benchmark market at time *t*, and *l* represents lag. C represents the control variables.

Control variables for the economy and capital markets determinates.
1. Economic growth
2. Inflation
3. Market capitalization to GDP
4. Number of listed companies
5. Interest rates (real)
6. Foreign Direct investments
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Control variable to account for the changes in legal and risk environment of the country.

1. Rule of Law (a proxy for legal barriers) from the World Governance Indicators.
2. Market openness (a proxy for risk) Chin-Ito openness index.
3. Economic Freedom Index from the Heritage Foundations.
4. The volatility of foreign exchange rates.

Figure 10 represents the graph sigma convergence for the overall sample. Adopters include the 47 countries while non-adopters include 9 countries. The dotted line represents the sigma convergence of non-adopters while the solid line represents the sigma convergence of adopters. The shaded area 05 represents the year during which IFRS is adopted. The graph shows that the sigma convergence is lower in post-adoption for both adopters and non-adopters compared to pre-adoption period. However, during first 3 years of post-adoption period adopters have greater sigma-convergence compared to non-adopters. But then non-adopters' convergence increased as well.

Figure 10: Graph of sigma convergence (Overall sample)
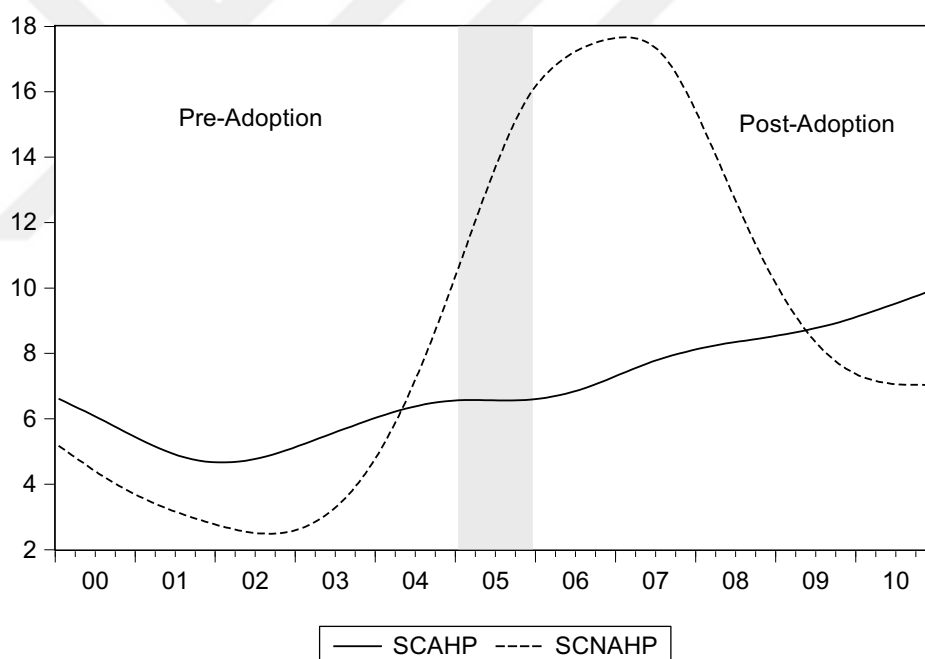
Notes 1: Trend values obtained by means of the H-P filter with the smoothing parameter λ=14400. The H-P filter is used only for graphs.
Notes 2: The light shaded area represents the adoption years. The period before that is Pre-IFRS adoption and after is Post-IFRS adoption.

Note 3: Sigma Convergence overall sample, adopters 47 countries non-Adopters 9 countries.

In sum, the findings of the study are robust to the frequency of data, classification of countries, benchmark used and analysis window. Further, it is also robust to the method used for converting the frequency of the control variable (results are not reported here).

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5 Conclusions:

The current study investigated the role of IFRS adoption in the integration of capital markets. Capital markets are integrated to each other's "if the returns on the assets issued and traded in the capital markets of different countries are correlated and comparable to each other" (Rene M Stulz, 1981). The integrated capital markets play a key role in economic growth by providing diversified investment opportunities, better risk sharing, efficient utilization of resources and better access to capital and money markets (Baele et al., 2004; Bekaert et al., 2003; P. B. Henry & Lorentzen, 2003).

However, there are different barriers which hinder the integration of capital markets. Bekaert (1995) identifies three types of barriers to capital markets integration (CMI): 1) Legal barriers, these are direct restrictions on foreign investments. 2) Risks involved in the internal environment of the country, (Examples of such risks include liquidity, political, economic policy, and currency risks (Bekaert et al., 2003); and 3) **Information related barriers**. The structure of accounting and regulatory framework is the key to information related barriers. Especially, financial information under different accounting rules is considered a barrier in the cross-border investment decision. Foreign investors have to spend extra cost and bear additional risks in case of the asymmetric information environment. The objective of the study is to investigate how IFRS adoption helps in removing the information related barriers and capital markets integration by controlling for the other factors or barriers.

The sample includes all the countries which have a benchmark stock market index with data available, comprising 56 countries; 47 are adopters and 9 are non-adopters. The overall period of study spans from 2000 to 2015. Beta and Sigma convergence approaches are used to measure the CMI. Beta convergence measures the speed with which a series converge to benchmark while sigma convergence measures the extent of convergences. Findings of the study fail to reject the null hypothesis that IFRS has no impact on the integration of capital markets.

It is concluded that merely adoption of IFRS does not ensure the associated benefits attached to it, other institutional factors also play a major role in shaping the accounting and regulatory infrastructure of a country. Even though prior literature

provides evidence that IFRS adoption increases comparability (Ashbaugh & Pincus, 2001; Barth et al., 2012; Cascino & Gassen, 2015; Hong et al., 2014), and Transparency (Horton et al., 2013; J. P. Preiato et al., 2013) in financial statements. It also results in a decreased cost of capital and increased market liquidity and cross-border investment (Messod D. Beneish et al., 2015; DeFond et al., 2011). However, these benefits are not uniform across the countries and still there exist differences between the accounting systems (Ball, 2006; Nobes, 2013).

Adoption of IFRS in more than 122 countries does not mean that these countries remove all differences between their accounting systems. National differences in financial reporting are still present even though same accounting standards are adopted (i.e. IFRS) (Nobes, 2006, 2013). Nobes (2013) points out the eight type of difference that is still present even after adopting IFRS. It is conjectured that presence of these difference is still a barrier to the integration of capital markets.

Current study documents no evidence of convergence in capital markets with IFRS adoption. These findings are consistent with Alnodel (2014), but contradictory to Yan et al. (2013) and F. Cai and Wong (2010). However, F. Cia and Wong (2010) used a sample of four developed countries adopted IFRS at the same time and 4 non-adopters' countries, similarly Yan et al. (2013) used the firm level data of mandatory adopting firms mostly from developed countries who adopted IFRS in 2005. So, their finding may be biased due to the sample selection and time period. Current study included all the countries with capital markets into sample starting from the earliest adoption date to recent, hence analyzed a comprihensive sample. Moreover, from the methodological point of view. F. Cia and Wong (2010) used the three years pre and post adoption correlation, and Yan et al. (2013) used the shock to global news as a convergence indicator on one year pre and post adoption firms level data. The current study used the price based measures of CMI which are relatively more accurate, reliable and have a clear interpretation (Adam et al., 2002).

IFRS adoption does have the same impact on the world because of different compliance enforcement mechanisms (Nobes, 2013). The countries with strong enforcement mechanism have more obvious positive effects of IFRS adoption (DeFond et al., 2011). Moreover, very few countries with developed markets have direct compliance with IASB-IFRS such as Israel and South Africa (Zeff & Nobes,

2010). Even if the country adopts IFRS the drafters and enforcers are local with their own incentives and being principal based IFRS provides greater opportunities for the manipulation (Ball, 2006). Apart from the accounting bodies and IFRS adoption the non-accounting institutions of a country also impact on the outcomes of IFRS (Wysocki, 2011). Studies also furnish evidence that the different translation, learning and transition issues (Nobes, 2013). It is conjectured that all above factors cause the diversity in accounting even after adopting the IFRS. This diversity cause the information asymmetry that is an obstacle to the integration of capital markets.

The current study contributes to the literature in a number of ways, first of all, it establishes a theoretical link between the adoption of IFRS and capital market integration. Second, it includes the all the countries with capital market data available to test the hypothesis, a large diversified sample while most of the existing studies focused only on the developed countries like F. Cia and Wong (2010). Thirdly, I have tested the long data period covering 2000-2015. The current study uses the country-level index data which account for the other indirect effects of IFRS adoption, allows using sophisticated econometric methods and control for other factors. The next contribution of the paper is the unique research design to measure the incremental impact of IFRS on CMI and use of best econometric techniques such as beta and sigma convergence. The countries are classified into treatment and control groups on the basis of date of adoption, market development and income level to have a matched comparison in order to segregate the impact of IFRS adoption. The control variables have also been used which may affect the integration of capital markets other than accounting rules.

Findings of the study are important for the investors, managers, researchers, and policymakers for decision making and diversification of their portfolio. In order to achieve the desired benefits from the adoption of IFRS the policymakers should put more emphasis on the compliance and enforcement, moreover, corporate governance rules should be strict to align the interests of management with investors. It would also be contributing factor to the decision of adoption or non-adoption of IFRS by a country. The investors also keep in mind that only the adoption of IFRS does not ensure the transparency and quality accounting other institutional factors are also important. Moreover, the different economic and trade unions such as EU should

also put the focus on the proper implementation and enforcement of IFRS to acquire the anticipated benefits.

The main limitation of the current study is the presence of confounding factors since the study includes a diverse sample of countries from all over the world, it is hard to eliminate all the confounding factors. The research is designed to account for it by introducing the control variables for factors affecting the integration of capital markets and risks specific to the country level. Moreover, treatment and control groups are matched according to the size of the country and income level, and use DID regression which helps to isolate the incremental effect of IFRS adoption on integration. However, there may be other country specific confounding factors. Next, the study considered a country IFRS adopter if the companies IFRS are required by country for the domestic listed but in actual some of the countries adopt IFRS, but there are still an application, enforcement, and accountability issues. We used the price based measures of integration which does not account for the asset pricing model, while Adam et al. (2002) argue that any good stock markets integration measure is incomplete without asset pricing that's hard to operationalise. Moreover, the interpretations of quantity based measures are based on the law of one price that holds at equilibrium, and does not account for the process towards it.

It is recommended for future research to further explore the impact of IFRS adoption in the reduction of information barriers. Moreover, the role of different enforcement and compliance mechanisms in the IFRS adoption process. From methodological perspective future research on the impact of IFRS on integration should use different smaller classification of countries to be more comparable control and treatment groups (e.g. geographic location based) and use of dynamic models of correlation.

References:

Ackerloff, G. (1970). The market for lemons: Quality uncertainty and the market mechanism. *Quarterly Journal of Economics, 84*(3), 488-500.

Adam, K., Jappelli, T., Menichini, A., Padula, M., & Pagano, M. (2002). Analyse, compare, and apply alternative indicators and monitoring methodologies to measure the evolution of capital market integration in the European Union. *Report to the European Commission*, 1-95.

Aggarwal, R., & Kyaw, N. A. (2005). Equity market integration in the NAFTA region: Evidence from unit root and cointegration tests. *International Review of Financial Analysis, 14*(4), 393-406.

Ahmed, A. S., Neel, M., & Wang, D. (2013). Does mandatory adoption of IFRS improve accounting quality? Preliminary evidence. *Contemporary Accounting Research, 30*(4), 1344-1372.

Alnodel, A. (2014). The Effect of the Adoption of International Financial Reporting Standards on Capital Market Integration in the Gulf Cooperation Council Countries. *RISK GOVERNANCE & CONTROL: Financial markets and institutions*, 464.

Amiram, D. (2012). Financial information globalization and foreign investment decisions. *Journal of International Accounting Research, 11*(2), 57-81.

Ashbaugh, H., & Pincus, M. (2001). Domestic accounting standards, international accounting standards, and the predictability of earnings. *Journal of accounting research, 39*(3), 417-434.

Babecký, J., Komárek, L., & Komárková, Z. (2013). Convergence of returns on Chinese and Russian stock markets with world markets: National and sectoral perspectives. *National Institute Economic Review, 223*(1), R16-R34.

Babetskaia-Kukharchuk, O., Babetskii, I., & Podpiera, J. (2008). Convergence in exchange rates: market's view on CE-4 joining EMU. *Applied Economics Letters, 15*(5), 385-390.

Baele, L., Ferrando, A., Hordahl, P., Krylova, E., & Monnet, C. (2004). Measuring European financial integration. *Oxford Review of Economic Policy, 20*(4), 509-530. doi:10.1093/oxrep/grh030

Ball, R. (2001). Infrastructure requirements for an economically efficient system of public financial reporting and disclosure. *Brookings-Wharton papers on financial services, 2001*(1), 127-169.

112

Ball, R. (2006). International Financial Reporting Standards (IFRS): pros and cons for investors. *Accounting and business research, 36*(sup1), 5-27.

Ball, R., Robin, A., & Wu, J. S. (2003). Incentives versus standards: properties of accounting income in four East Asian countries. *Journal of Accounting and Economics, 36*(1-3), 235-270. doi:10.1016/j.jacceco.2003.10.003

Barry, C. B., & Brown, S. J. (1985). Differential information and security market equilibrium. *Journal of Financial and Quantitative Analysis, 20*(04), 407-422.

Barth, M. E., Landsman, W. R., Lang, M., & Williams, C. (2012). Are IFRS-based and US GAAP-based accounting amounts comparable? *Journal of Accounting and Economics, 54*(1), 68-93.

Barth, M. E., Landsman, W. R., & Lang, M. H. (2008). International accounting standards and accounting quality. *Journal of accounting research, 46*(3), 467-498.

Barth, M. E., Landsman, W. R., Young, D., & Zhuang, Z. (2014). Relevance of differences between net income based on IFRS and domestic standards for European firms. *Journal of Business Finance & Accounting, 41*(3-4), 297-327.

Barth, M. E., & Schipper, K. (2008). Financial reporting transparency. *Journal of Accounting, Auditing & Finance, 23*(2), 173-190.

Bekaert, G. (1995). Market integration and investment barriers in emerging equity markets. *The World Bank Economic Review, 9*(1), 75-107.

Bekaert, G., & Harvey, C. R. (1995). Time-varying world market integration. *The Journal of Finance, 50*(2), 403-444.

Bekaert, G., & Harvey, C. R. (2000). Foreign speculators and emerging equity markets. *The Journal of Finance, 55*(2), 565-613.

Bekaert, G., Harvey, C. R., & Lundblad, C. T. (2003). Equity market liberalization in emerging markets. *Journal of Financial Research, 26*(3), 275-299.

Beneish, M. D., Miller, B. P., & Yohn, T. L. (2012). The impact of financial reporting on equity versus debt markets: Macroeconomic evidence from mandatory IFRS adoption. *Available at SSRN 1403451*.

Beneish, M. D., Miller, B. P., & Yohn, T. L. (2015). Macroeconomic evidence on the impact of mandatory IFRS adoption on equity and debt markets. *Journal of*

113

Accounting and Public Policy, 34(1), 1-27. doi:10.1016/j.jaccpubpol.2014.10.002

Beuselinck, C., Joos, P., Khurana, I. K., & Meulen, S. V. d. (2010). Mandatory adoption of IFRS and analysts' forecasts information properties.

Beuselinck, C., Joos, P., & Van der Meulen, S. (2007). International earnings comparability. *Available at SSRN 1014086.*

Botosan, C. A., & Plumlee, M. A. (2002). A re-examination of disclosure level and the expected cost of equity capital. *Journal of accounting research, 40*(1), 21-40.

Bradshaw, M. T., Bushee, B. J., & Miller, G. S. (2004). Accounting Choice, Home Bias, and US Investment in Non-US Firms. *Journal of accounting research, 42*(5), 795-841.

Brennan, M. J., & Cao, H. H. (1997). International portfolio investment flows. *The Journal of Finance, 52*(5), 1851-1880.

Brochet, F., Jagolinzer, A. D., & Riedl, E. J. (2013). Mandatory IFRS adoption and financial statement comparability. *Contemporary Accounting Research, 30*(4), 1373-1400.

Brown, P. (2011). International Financial Reporting Standards: what are the benefits? *Accounting and Business Research, 41*(3), 269-285. doi:10.1080/00014788.2011.569054

Brüggemann, U., Daske, H., Homburg, C., & Pope, P. F. (2010). *How do individual investors react to global IFRS adoption?*

Bushman, R. M., Piotroski, J. D., & Smith, A. J. (2004). What determines corporate transparency? *Journal of accounting research, 42*(2), 207-252.

Byard, D., Li, Y., & Yu, Y. (2011). The effect of mandatory IFRS adoption on financial analysts' information environment. *Journal of accounting research, 49*(1), 69-96.

Cai, F., & Wong, H. (2010). The effect of IFRS adoption on global market integration. *International Business & Economics Research Journal (IBER), 9*(10).

Cai, L., Rahman, A. R., & Courtenay, S. M. (2008). The effect of IFRS and its enforcement on earnings management: An international comparison. *Available at SSRN 1473571.*

Cairns, D., Massoudi, D., Taplin, R., & Tarca, A. (2011). IFRS fair value measurement and accounting policy choice in the United Kingdom and Australia. *The British Accounting Review, 43*(1), 1-21.

Callao, S., & Jarne, J. I. (2010). Have IFRS affected earnings management in the European Union? *Accounting in Europe, 7*(2), 159-189.

Campbell, J. Y., & Perron, P. (1991). Pitfalls and opportunities: what macroeconomists should know about unit roots. *NBER macroeconomics annual, 6*, 141-201.

Cascino, S., & Gassen, J. (2015). What drives the comparability effect of mandatory IFRS adoption? *Review of Accounting Studies, 20*(1), 242-282.

Chambet, A., & Gibson, R. (2008). Financial integration, economic instability and trade structure in emerging markets. *Journal of International Money and Finance, 27*(4), 654-675.

Chen, H., Tang, Q., Jiang, Y., & Lin, Z. (2010). The role of international financial reporting standards in accounting quality: Evidence from the European Union. *Journal of International Financial Management & Accounting, 21*(3), 220-278.

Chen, L., Ng, J., & Tsang, A. (2015). The Effect of Mandatory IFRS Adoption on International Cross-Listings. *The Accounting Review, 90*(4), 1395-1435. doi:10.2308/accr-50982

Chinn, M. D., & Ito, H. (2006). What matters for financial development? Capital controls, institutions, and interactions. *Journal of development economics, 81*(1), 163-192.

Choi, Y. S., Peasnell, K., & Toniato, J. (2013). Has the IASB been successful in making accounting earnings more useful for prediction and valuation? UK evidence. *Journal of Business Finance & Accounting, 40*(7-8), 741-768.

Chow, G. C., & Lin, A.-l. (1971). Best linear unbiased interpolation, distribution, and extrapolation of time series by related series. *The review of Economics and Statistics*, 372-375.

Christensen, H. B., Hail, L., & Leuz, C. (2013). Mandatory IFRS reporting and changes in enforcement. *Journal of Accounting and Economics, 56*(2), 147-177.

Clark, P., Tamirisa, N., Wei, S.-J., Sadikov, A., & Zeng, L. (2004). Exchange rate volatility and trade flows-some new evidence. *IMF Occasional Paper, 235*.

Click, R. W., & Plummer, M. G. (2005). Stock market integration in ASEAN after the Asian financial crisis. *Journal of Asian Economics, 16*(1), 5-28. doi:10.1016/j.asieco.2004.11.018

Covrig, V. M., Defond, M. L., & Hung, M. (2007). Home bias, foreign mutual fund holdings, and the voluntary adoption of international accounting standards. *Journal of accounting research, 45*(1), 41-70.

Daske, H., Hail, L., Leuz, C., & Verdi, R. (2008). Mandatory IFRS reporting around the world: Early evidence on the economic consequences. *Journal of accounting research, 46*(5), 1085-1142.

Daske, H., Hail, L., Leuz, C., & Verdi, R. (2013). Adopting a label: Heterogeneity in the economic consequences around IAS/IFRS adoptions. *Journal of accounting research, 51*(3), 495-547.

De George, E. T., Li, X., & Shivakumar, L. (2015). A review of the IFRS adoption literature. *Review of Accounting Studies*, 1-107.

Dechow, P., Ge, W., & Schrand, C. (2010). Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics, 50*(2), 344-401.

DeFond, M., Hu, X., Hung, M., & Li, S. (2011). The impact of mandatory IFRS adoption on foreign mutual fund ownership: The role of comparability. *Journal of Accounting and Economics, 51*(3), 240-258. doi:10.1016/j.jacceco.2011.02.001

Demmer, M., Pronobis, P., & Yohn, T. L. (2016). Financial Statement-Based Forecasts and Analyst Forecasts of Profitability: The Effect of Mandatory IFRS Adoption. *Kelley School of Business Research Paper*(15-9).

Diamond, D. W., & Verrecchia, R. E. (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance, 46*(4), 1325-1359.

Drake, M. S., Myers, L. A., & Yao, L. (2010). *Are Liquidity Improvements Around the Mandatory Adoption of IFRS Attributable to Comparability Effects or to Quality Effects?*

Espinoza, R. A., Williams, M. O., & Prasad, A. (2010). *Regional financial integration in the GCC*: International Monetary Fund.

Evans, L. (2004). Language, translation and the problem of international accounting communication. *Accounting, Auditing & Accountability Journal, 17*(2), 210-248.

Feldstein, M. S., & Horioka, C. Y. (1979). Domestic savings and international capital flows: National Bureau of Economic Research Cambridge, Mass., USA.

Florou, A., & Pope, P. F. (2012). Mandatory IFRS Adoption and Institutional Investment Decisions. *The Accounting Review, 87*(6), 1993-2025. doi:10.2308/accr-50225

Francis, J. R., Huang, S. X., & Khurana, I. K. (2016). The Role of Similar Accounting Standards in Cross-Border Mergers and Acquisitions. *Contemporary Accounting Research, 33*(3), 1298-1330. doi:10.1111/1911-3846.12176

Garcia Osma, B., & Pope, P. F. (2011). Strategic balance sheet adjustments under first-time IFRS adoption and the consequences for earnings quality. *Available at SSRN 1735009*.

Gkougkousi, X., & Mertens, G. (2010). Impact of mandatory IFRS adoption on the financial sector. *Available at SSRN 1651088*.

Gordon, L. A., Loeb, M. P., & Zhu, W. (2012). The impact of IFRS adoption on foreign direct investment. *Journal of Accounting and Public Policy, 31*(4), 374-398.

Gordon, R. H., & Bovenberg, A. L. (1996). Why is capital so immobile internationally? Possible explanations and implications for capital income taxation. *The American Economic Review*, 1057-1075.

Guiso, L., Jappelli, T., Padula, M., & Pagano, M. (2004). Financial market integration and economic growth in the EU. *Economic Policy, 19*(40), 524-577.

Hail, L., & Leuz, C. (2007). Capital market effects of mandatory IFRS reporting in the EU: Empirical evidence. *Available at SSRN 1511671*.

Hail, L., Leuz, C., & Wysocki, P. (2010). Global Accounting Convergence and the Potential Adoption of IFRS by the U.S. (Part I): Conceptual Underpinnings and Economic Analysis. *Accounting Horizons, 24*(3), 355-394. doi:10.2308/acch.2010.24.3.355

Henry, D. (2008). Global Accounting Rules: Simpler Yes, but Better? *Business Week, 4*.

Henry, P. B. (2000a). Do stock market liberalizations cause investment booms? *Journal of Financial Economics, 58*(1), 301-334.

117

Henry, P. B. (2000b). Stock market liberalization, economic reform, and emerging market equity prices. *The Journal of Finance, 55*(2), 529-564.

Henry, P. B., & Lorentzen, P. L. (2003). *Domestic capital market reform and access to global finance: Making markets work*. Retrieved from

Hicks, J. R. (1975). Value and capital: An inquiry into some fundamental principles of economic theory. *OUP Catalogue*.

Hong, H. A., Hung, M., & Lobo, G. J. (2014). The Impact of Mandatory IFRS Adoption on IPOs in Global Capital Markets. *The Accounting Review, 89*(4), 1365-1397. doi:10.2308/accr-50720

Horton, J., Serafeim, G., & Serafeim, I. (2013). Does mandatory IFRS adoption improve the information environment? *Contemporary Accounting Research, 30*(1), 388-423.

Houqe, M. N., Van Zijl, T., Dunstan, K., & Karim, A. W. (2012). The effect of IFRS adoption and investor protection on earnings quality around the world. *The International journal of accounting, 47*(3), 333-355.

Jappelli, T., & Pagano, M. (2008). Financial market integration under EMU.

Jayaraman, S., & Verdi, R. S. (2014). Are Reporting Incentives and Accounting Standards Substitutes or Complements in Achieving Accounting Comparability? *Available at SSRN 2428263*.

Jiao, T., Koning, M., Mertens, G., & Roosenboom, P. (2012). Mandatory IFRS adoption and its impact on analysts' forecasts. *International Review of Financial Analysis, 21*, 56-63.

Kang, W. (2013). The impact of mandatory IFRS adoption on the earnings–returns relation. *Applied Financial Economics, 23*(13), 1137-1143.

Kim, Y., & Li, S. (2011). The externality effect of accounting standards convergence: evidence from cross-border information transfers around EU mandatory IFRS adoption. *Abrufbar unter:* http://ssrn/. *com/abstract, 1936170*, 1-48.

King, R. G., & Levine, R. (1993). Finance and growth: Schumpeter might be right. *The quarterly journal of economics*, 717-737.

Kose, M. A., Prasad, E. S., & Terrones, M. E. (2009). Does financial globalization promote risk sharing? *Journal of Development Economics, 89*(2), 258-270.

118

Lambert, R., Leuz, C., & Verrecchia, R. E. (2007). Accounting information, disclosure, and the cost of capital. *Journal of accounting research, 45*(2), 385-420.

Landsman, W. R., Maydew, E. L., & Thornock, J. R. (2012). The information content of annual earnings announcements and mandatory adoption of IFRS. *Journal of Accounting and Economics, 53*(1), 34-54.

Lee, E., Walker, M., Christensen, H. B., & Zhao, R. (2010). Mandating IFRS: Its impact on the cost of equity capital in Europe. *Journal of International Accounting Research, 9*(1), 58-59.

Leuz, C., & Verrecchia, R. E. (2000). The economic consequences of increased disclosure (digest summary). *Journal of accounting research, 38*, 91-124No.

Leuz, C., & Wysocki, P. D. (2016). The economics of disclosure and financial reporting regulation: Evidence and suggestions for future research. *Journal of accounting research, 54*(2), 525-622.

Levine, R., & Zervos, S. (1998). Stock markets, banks, and economic growth. *American economic review*, 537-558.

Li, S. (2010). Does mandatory adoption of International Financial Reporting Standards in the European Union reduce the cost of equity capital? *The Accounting Review, 85*(2), 607-636.

McCREEVY, C. (2005). IFRS–No Pain, No Gain? *European Commissioner for Internal Market and Services Speech, 5*, 621.

Merton, R. C. (1987). A simple model of capital market equilibrium with incomplete information. *The Journal of Finance, 42*(3), 483-510.

Morais, A. I., & Curto, J. D. (2009). Mandatory Adoption of IASB Standards: Value Relevance and Country-Specific Factors. *Australian Accounting Review, 19*(2), 128-143.

Nobes, C. (2006). The survival of international differences under IFRS: towards a research agenda. *Accounting and Business Research, 36*(3), 233-245.

Nobes, C. (2013). The continued survival of international differences under IFRS. *Accounting and Business Research, 43*(2), 83-111.

Osada, M., & Saito, M. (2010). Financial Integration and Economic Growth: An Empirical Analysis Using International Panel Data from 1974-2007. *Research and Statistics Department, Bank of Japan*.

119

Piot, C., Janin, R., & Dumontier, P. (2011). *IFRS consequences on accounting conservatism within Europe.* Paper presented at the CAAA Annual Conference.

Platikanova, P., & Nobes, C. (2006). Was the introduction of IFRS in Europe value-relevant? *Available at SSRN 949160.*

Preiato, J., Brown, P., & Tarca, A. (2015). A comparison of between-country measures of legal setting and enforcement of accounting standards. *Journal of Business Finance & Accounting, 42*(1-2), 1-50.

Preiato, J. P., Brown, P. R., & Tarca, A. (2013). Mandatory Adoption of IFRS and Analysts' Forecasts: How Much Does Enforcement Matter? *UNSW Australian School of Business Research Paper*(2009).

Quah, D. (1993). Galton's fallacy and tests of the convergence hypothesis. *The Scandinavian Journal of Economics*, 427-443.

Ramanna, K., & Sletten, E. (2014). Network effects in countries' adoption of IFRS. *The Accounting Review, 89*(4), 1517-1543.

Sala-i-Martin, X. X. (1996). The classical approach to convergence analysis. *The economic journal*, 1019-1036.

Singleton-Green, B. (2015). The Effects of Mandatory IFRS Adoption in the EU: A Review of Empirical Research. *Information for Better Markets, Forthcoming.*

Stulz, R. M. (1981). On the effects of barriers to international investment. *The Journal of Finance, 36*(4), 923-934.

Stulz, R. M. (1999). Golbalization, corporate finance, and the cost of capital. *Journal of applied corporate finance, 12*(3), 8-25.

Stulz, R. M. (2005). The limits of financial globalization. *The Journal of Finance, 60*(4), 1595-1638.

Sunder, S. (2011). IFRS monopoly: the Pied Piper of financial reporting. *Accounting and Business Research, 41*(3), 291-306.

Tan, H., Wang, S., & Welker, M. (2011). Analyst following and forecast accuracy after mandated IFRS adoptions. *Journal of accounting research, 49*(5), 1307-1357.

Tarca, A. (2012). The case for global accounting standards: Arguments and evidence. *Available at SSRN 2204889.*

Tweedie, S. D. (2006). Transparent, translucent, or transient: where have IFRS left us? *Other Publications, 2006*(1), 3-14.
120

Wang, C. (2014). Accounting standards harmonization and financial statement comparability: Evidence from transnational information transfer. *Journal of accounting research, 52*(4), 955-992.

Wang, X., Young, D., & Zhuang, Z. (2008). *The effects of mandatory adoption of International Financial Reporting Standards on information environments.* Paper presented at the American Accounting Association Conference, Anaheim, California.

Wysocki, P. (2011). New institutional accounting and IFRS. *Accounting and Business Research, 41*(3), 309-328.

Yabara, M. M. (2012). *Capital Market Integration: Progress Ahead of the East African Community Monetary Union*: International Monetary Fund.

Yan, L., Dhaliwal, D. S., & Periera, R. (2013). *Does Mandatory IFRS Adoption Facilitate Financial Market Integration.* CAAA Annual Conference. Retrieved from http://dx.doi.org/10.2139/ssrn.2197775

Yu, G. (2010). *Accounting standards and international portfolio holdings: Analysis of cross-border holdings following mandatory adoption of IFRS.* University of Michigan.

Yu, G., & Wahid, A. S. (2014). Accounting Standards and International Portfolio Holdings. *The Accounting Review, 89*(5), 1895-1930. doi:10.2308/accr-50801

Zeff, S. A. (2007). Some obstacles to global financial reporting comparability and convergence at a high level of quality. *The British Accounting Review, 39*(4), 290-302.

Zeff, S. A., & Nobes, C. W. (2010). Commentary: Has Australia (or any other jurisdiction)'adopted'IFRS? *Australian accounting review, 20*(2), 178-184.

Zéghal, D., Chtourou, S., & Sellami, Y. M. (2011). An analysis of the effect of mandatory adoption of IAS/IFRS on earnings management. *Journal of international accounting, auditing and taxation, 20*(2), 61-72.

Appendix

A: Difference in difference (DID):

Since the work of Ashenfelter and Card (1985), DID methods have been very popular and widespread in the Quasi-experiments (Natural experiments). In this methodology to determine the incremental effect of policy change, research has been designed around the policy change in two time periods and two groups.

The time period before and after the treatment or policy change is called Pre-policy change or Post-policy change respectively. One of the groups has not been exposed (not affected) to policy change during the entire period (Pre- and Post-) known as the control group (in our case nonadopters of IFRS). The second group has been exposed to a policy change in the second period (Post policy change) but not in the first period.

In quasi-experiments, control and treatment groups result from a change in certain policy (like IFRS adoption), unlike the true experiments in which control and treatment groups have been defined randomly and explicitly. So caution is required to define the control and treatment groups. The beauty of this methodology in the removal of biases that can arise because of systematic differences between the control and treatment groups, and also biases from comparisons over time in the treatment group that could be the result of trends.

Overall, the sample is divided into four groups: the control group before the IFRS adoption, the control group after the IFRS adoption, the treatment group before the IFRS adoption, and the treatment group after the IFRS adoption. To measure the effect of policy change (or treatment) called the policy change effect following model have been utilized. If the treatment group is represented by "T" and control group by "C". The following equation will give the incremental effect of policy change.

$$y = \beta_0 + \delta_0 d_2 + \beta_1 dT + \boldsymbol{\delta_1} d2.dT + \mu \qquad (1)$$

Where y is the variable of interest, dT is dummy variable, its value is "1" if it is treatment group "0" otherwise. d2 is dummy variable for the time, 2 represents post-IFRS adoption period. μ represents the other factors. δ_1 will give us the effect of

policy change, it is also called the difference-in-difference estimator. δ_1 can be estimated in the following way as well.

$$\delta_1 = \left(\bar{y}_{2,T} - \bar{y}_{2,C}\right) - \left(\bar{y}_{1,T} - \bar{y}_{1,C}\right) \tag{2}$$

where bar represents the averages and the first subscript denotes the time and second denotes the group.

Appendix B: Variables, definitions and data source

Variable	Definition	Source
IFRS Adoption Status	The year in which the IFRS are required by the country for all domestic listed companies is called adoption year and country is called adopter.	IFRS website, Deloitte IAS Plus website, PwC reports and SSOC reports of World Bank
Stock prices	Monthly and weekly benchmark stock price indices of each stock exchange are obtained.	Thomson Reuters Eikon DataStream.
GDP growth rate (annual %)	Gross Domestic Product (GDP) is defined as the aggregate of gross value of products created by all local producers in the country plus any taxes and minus any subsidies not included in the value of the products.	World Bank national accounts data, and OECD National Accounts data files
Inflation	The consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly	World Bank Databank
Market capitalization to GDP	Market capitalization (also known as market value) is defined as the total market value of shares outstanding for domestic listed companies (share price x total number of shares).	World Bank and World Federation of Exchanges databases

Market size (total number of listed companies)	It represents the domestic and foreign companies which are listed on the stock exchange at the end of a year. However, investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies, such as holding companies and investment companies, regardless of their legal status, are excluded while calculating the number of total listed companies.	World Bank and the World Federation of Exchanges databases
Real interest rates	It is defined as "the lending interest rate adjusted for inflation as measured by the GDP deflator".	World Bank database
Foreign direct investment (FDI)	The total direct capital investment flows to a certain country. It includes equity investment, reinvestment of earnings, and other capital investment.	World Bank database
Central government debt	The fixed term outstanding obligation of government to the others on a particular date (year-end).	World Bank database
Rule of Law	It is defined as the extent to which agents have certainty and accept the rules of society	Worldwide Governance Indicators (WGI) dataset
Chinn-Ito index (KAOPEN)	It represents the degree of countries capital account openness.	Chinn-Ito website
Economic Freedom Index (EFI)	Economic freedom is the right to control one self's work, to get labor and property without interference.	The Heritage Foundation website

Foreign Exchange Volatility	It is the risk associated with unanticipated movements in the exchange rate. To calculate the foreign exchange rate volatility. Each country monthly and weekly spot exchange rate with US dollar is obtained.	Thomson Reuter Eikon DataStream.

Vita

Mr. Rana Muhammad Ammar ZAHID was born on 25th December 1986 in Gojra, Toba Tek Singh Pakistan. He received his Bachelor's in Commerce Degree from the University of Agriculture Pakistan and MBA degree from Hailey College of Banking and Finance, University of Punjab, Pakistan. He also has a professional certification in accounting i.e PIPFA from Pakistan Institute of Public Finance Accountants Karachi. In 2010, he was employed at the Virtual University of Pakistan as an instructor (on study leaves). He won Higher Education Pakistan Funding for his doctoral degree. He studied at three universities during Ph.D. studies: Middle East Technical University, Izmir University of Economics and Alexandru Ioan Cuza University (Erasmus Exchange). During his Ph.D. studies, he also served as research assistant to Prof. Can Simga-Mugan and assisted in different teaching courses as well. His research interests are International Accounting and Business, Capital Markets, IFRS, and Corporate Governance. He participated in a number of international conferences where he presented research papers, (some of them are already published, others are in the publication process). He published in different SSCI and International Journals such as Emerging Markets Finance and Trade.