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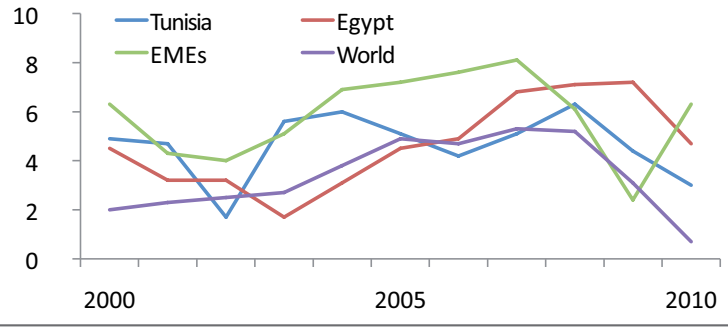
Forecasting the Costs and Benefits of Implementing Basel III for North African Emerging Economies: An Application to Egypt and Tunisia*

I. Introduction

The political transition in Tunisia and Egypt caught most of the world off-guard. The ousting of the ancien régimes signals an opportunity for reform. Though the triggers of the revolutions may have been a combination of political repression coupled with the inequitable distribution of income, the demise of the long-time autocratic leaders was precipitated by limited opportunities for economic progress and the prevalence of youth unemployment. While the ousted regimes used to boast about the high macroeconomic performance of their countries, Figure (1) shows that both Tunisian and Egyptian economies pale in comparison to emerging market economies (EMEs) . In fact, the better performance that was temporarily recorded by both countries amidst the Global Financial Crisis (GFC) resulted from a low level of integration with the global financial markets, not to sound economic policies (Stiglitz, 2010). Thus, the prospects for establishing stability are linked to the newly elected governments' ability to tackle the persistent problem of low income levels – a core grievance of the protestors that toppled the former regimes.

Figure 1: Real GDP Growth (2000-2010)



Source: - International Monetary Fund (2010) World Economic Outlook: Rebalancing Growth, Washington.
United Nations Department of Economic and Social Affairs (2011) World Economic Situation and Prospects (WESP) 2011, UNDESA, New York.

* This paper was produced by Monal Abdel-Baki (Consultant, ORNA) under the supervision of Vincent Castel (Principal Program Coordinator, ORNA) with support from Paula Ximena Mejia (Consultant, ORNA). Overall guidance was received from Jacob Kolster (Director, ORNA) and Nono Matondo-Fundani (Director, ORNB).

[1] In this research, EMEs comprise of 47 nations selected in accordance with the classification of FTSE Emerging Market Index. See Appendix (2) for full details.

1.1 Additional Costs in the Wake of the Global Financial Crisis

The transition to democracy and the rebuilding of the socioeconomic and political institutional framework are not the only costs that both Egypt and Tunisia will incur. Far from the huge bills needed to repair the devastated economies, the Basel Committee on Banking Supervision (BCBS)[2] may render the transition task ever more difficult. Following the financial meltdown, the global community agreed on the need to set out relevant standards, dubbed "Basel III", to govern the soundness of financial institutions around the world[3]. In spite of the massive fiscal stimulus packages, substantial bailout plans and exceptionally loose monetary policies, the global economy is expected to witness a low jobless recovery (Boorman, 2009). Regulators specified a new set of capital and liquidity requirements, tightening the grip on the financial institutions that pulled the world economy into a chaotic situation. But the banking industry stoked fears that the new stringent requirements could choke off nascent economic recovery. This has prompted the Basel Committee to reach a concession to stretch the phase-in implementation period until January 2019. But prior to discussing the nature, magnitude and effects of the regulatory controls, it is essential to navigate the financial predicament that has altered the global financial landscape.

1.2 Causes of the Global Financial Crisis

The recent financial turmoil originated in the United States' finance industry as a result of a set of complex and multi-layered financial instruments, which were in many cases backed by fragile assets (Taylor, 2011). As the risk assignments became murkier and the emphasis on generating fees expanded, incentives for due diligence worsened, leading to inadequate monitoring of loan originators and oblivion to supervising shadow banking (Jenkins and Masters, 2010)[4]. Brunnermeier (2009) succinctly captures the nature of the financial crisis and its rapid contagion by stipulating that the "originate-and-distribute model"[5] exacerbated reckless trading and promoted the heedless flow of funds from healthy to unwholesome institutions, hence freezing interbank markets and turning a liquidity crisis into a solvency and a systemic banking crisis[6]. Instantaneously, panic selling took over global markets and deleveraging minimised the system's ability to absorb the shock, thus leading to a colossal decline in confidence and increasing counterparty risk.

As the ailing global economy blew cavernous holes in national budgets, mounting censure was directed to financial regulators in OECD nations. Their counterparts in emerging economies have not escaped fierce condemnation for blatantly allowing their Sovereign Wealth Fund (SWF)[7] managers to acquire precariously leveraged assets (Ashcraft and Schuermann, 2008). While credit rating firms failed to properly measure the inherent dual risks arising from sub-prime loans and the new financial architecture, policymakers resorted to easy money and low interest rates to further boost house purchases and consumption (Mishkin, 2008). All the more, the openness of international financial markets tempted western governments to expand their expenditure by taking up huge foreign debt at cheap interest rates especially since they were weary of rebounding into a post-2001 recession. The issuance of AAA-government bonds tamed emerging economies' hunger for holding solid sovereign securities (Balin, 2010). In actual fact, their ripe memory of financial collapse during the Washington Consensus obliged EMEs to maintain high international reserves to cushion their economies against violent swings in international markets (Obstfeld, Shambaugh and Taylor, 2010). Consequently, western fiscal agents accumulated national debt that approached the perilous threshold of 90 percent debt-to-GDP ratio boding an economic predicament (Reinhart and Rogoff, 2010).

Equally accountable for the upsurge of the sub-prime mortgage crisis are commercial and mortgage bankers who lured home-owners into taking mortgages that they would, in most probability, fail to pay off. Hence, compatible with the notion that lower interest rates and lesser debt service costs have played an important role in leading western

[2] BCBS was created in 1974 by the central bank governors of the Group of Ten (G10) nations. Its membership was expanded from 13 to 27 nations after the global meltdown. It meets four times a year at the premises of the Bank for International Settlements, which is an intergovernmental institution delivering services to central banks and international institutions. The G10 was originally a group of 10 industrial nations, and has expanded to 11.
[3] The agreement is known as "Basel III" because it is the third version of the Basel Accord I and Basel Accord II rules negotiated through the Basel Committee on Banking Supervision (Basel Committee).
[4] Shadow banks are unregulated non-depository financial institutions and non-bank investment vehicles such as hedge funds and money market funds. Their activities are not confined to investing in newly engineered financial instruments, but have expanded into financing business firms. At the outbreak of the crisis, US shadow banks were approximately equal in size to depository institutions.
[5] As opposed to the "originate-to-hold" paradigm, the "originate-to-distribute" model is an innovative process by which banks do not hold the loans that they had originated, but distribute them among traders and/or financial institutions after repackaging and converting them into securities, namely collateralised debt obligations (CDOs) and structured investment vehicles (SIVs). Hence, the originators of loans are not the holders of risks. Please refer to Appendix (3) for more details on how housing securatisation is enacted.
[6] During a systemic banking crisis, a country's corporate and financial sectors experience immense difficulties in meeting contracts and loan obligations. Bad debts increase sharply, exhausting large portions of bank capital.
[7] SWFs are central bank or state-owned investment funds comprising international financial assets and instruments such as stocks, bonds, real estate property, precious metals or foreign currencies.

sovereigns to assume more debt, mortgage debt per capita at the dawn of the global financial crisis (GFC) reached unsurpassed highs in most western economies ranging between 6-10 percent of personal income (Committee on the Global Financial System, 2006). More notably, lower interest rates inflated the levels of mortgage equity withdrawal,[8] which was encouraged by western governments to promote consumer spending (Quigley et al., 2009). The stern monetarist and neo-classical believers in the self-regulating ability of the free market convinced policymakers in slackening off their regulatory controls on financial institutions on the premise that, in accordance with the "efficient-market hypothesis",[9] financial assets are bound to be priced at their intrinsic value (Shiller, 2005).

The combined effects of all of these factors culminated in the bursting of the housing bubble. What truly took the world by surprise was the rapid global contagion from what was initially perceived to be a domestic US housing bubble. The transformation of exuberant trading to panic selling led to infectivity from global financial markets to the real economy. It is not just the impact on leveraged financial institutions that matters, but more importantly is the decline in the financial system's ability to channel funds to those institutions with productive investment opportunities. This is but another episode marking the fragility of the efficient-market hypothesis and alerting the international community to the dire need for drafting globally binding and uniform regulatory parameters for lenders. History recalls that bank failures result in major economic disruption and recessions. Accordingly, it becomes imperative to regulate the capital adequacy and liquidity management of banks and to correlate them with high standards of corporate governance. Domestic regulators and policymakers may be familiar with their own economies and financial sectors, but lack essential details about foreign ones. Especially given the level of global economic integration and the colossal international flow of funds, unchecked regulation and the risk exposure of banks made the journey of funds from one market to another fraught with peril.

1.3 Global Solidarity to Introduce a Uniform Regulatory Framework

The global financial crisis triggered a large body of literature to detect its multiple determinants (Kacperczyk and Schnabl, 2010; Laux and Leuz, 2010; Levine, 2010), its channels of contagion (Rose and Spiegel, 2009; Krishnamurthy, 2010) and the national and global reform efforts (Cecchetti, 2009; Kay, 2009; Sakbani, 2010). Evidence from a number of financial crises in South East Asia and Latin America illustrates the successful experience of EMEs in containing financial calamities and distinguishes between containment and financial regulation (Gelpern, 2009). The earlier experience of emerging economies, which had wrestled with their home-grown crises, demonstrates that whilst containment is urgent and brief, successful financial regulation is a long-term project that aims towards crisis prevention and the entrenchment of sound economic incentives (Besley, 2006). Yet, long-term regulations are still very much needed to avoid possible reckless trading and risky financial transactions (Griffith-Jones and Persaud, 2008).

The common consensus among economists is that the current financial turmoil is rooted in a combination of factors that regulatory agents were totally oblivious to, some common to previous financial crises and others entirely new (Brunnermeier, 2009). Especially following the overwhelming financial contamination, most of the literature on regulatory reforms and supervision focuses on the need for adopting standardized measures to restructure the global financial system (IMF, 2010a; IIF, 2010; BCBS, 2010a). But the very fact that the implementation costs drastically differ from one region to another begs the question of whether a uniform set of standards would be compatible with economic systems that experience varying levels of financial development (Berglöf and Claessens, 2006). Suetin (2009) explains that EMEs encounter pro-cyclical financial crises due to their vulnerability to haemorrhages of hot money, and hence the regulatory controls required by their shallow financial sectors are poles apart from those needed for deeper ones.

It was during the Post-Washington Consensus era that scholarly work started to focus on the special needs and vulnerabilities of developing and emerging nations (Briguglio, 1995; Armstrong et al., 1998). In the vein of attacking one-size-fits-all policies, concerns were voiced regarding the dire need to attune the proposed reforms with the development targets and the lower level of institutional development of emerging economies (Griffith-Jones et al., 2002; Claessens, 2010). Yet, much of the empirical work on Basel III does not pay much heed to developing and emerging economies (Suttle et al, 2010). Even in the rare occasion when research discusses the expected effects on emerging financial systems and economies, it tends to focus on transition economies or Asian and Latin American emerging markets (Reisen, 2008; Berglöf et al, 2009; Moreno, 2010). Into the bargain, recent empirical work also employs panel data which places EMEs in one basket (Jeong and Kim, 2010; De Haas and

[8] Mortgage equity withdrawal is the act of household borrowing against the real value of houses, i.e. the market value of the real estate property less accumulated mortgages and liabilities.
[9] This theory asserts that the efficiency of the stock market causes existing stocks to invariably trade at their fair value, making it impossible to either buy undervalued stocks or to sell stocks for inflated prices. Hence, the only way to obtain higher returns is by purchasing riskier assets.

Lelyveld, 2006). Yet, this untenable trend is attacked by EMEs, the holders of the bulk of reserve currencies and the initiators of global demand (della Paolera, 2010), as well as by western scholars who insist on voicing the concerns of EMEs in regard to the redesign of the global financial architecture (Ocampo and Stiglitz, 2008; Bordo and James, 2008; Elliott, 2010). Developing nations also criticise the Basel Committee for not conducting assessments of jurisdictional compliance to the regulatory standards (Grynberg and Silva, 2006).

In response to the crisis, domestic regulatory authorities designed financial reforms that included the fundamental drivers of sustained economic growth and fiscal responsibility.[10] The reforms were considered in tandem with a global unanimous initiative that aims to tighten the grip on the unchecked greed of the financial services industry. International conformity culminated in the establishment of the Financial Stability Board (FSB) by the G20 in 2009.[11] Global regulators needed to enhance rulings in order to provide a basis for reform and to avoid the recurrence of future crises (Peston, 2010). The efforts of the BCBS, the FSB and the International Monetary Fund (IMF) culminated in drafting the foundation of Basel III, which endeavours to improve on the preceding version that has failed to provide an adequate shield against the recent global financial crisis.

1.4 Significance of the Study

There is no doubt that the stability and steady growth of the financial system depend on an adequate regulatory framework. But the question that remains is whether this universally binding accord strikes the delicate balance between the instinctive requirement to regulate unruly financial risks and the more urgent need to preserve the financial sector's ability to serve each individual national economy. More importantly, will the unvarying set of costly and binding stipulations add to the burdens shouldered by the already overtaxed emerging economies? Are these overriding rulings absolutely necessary for emerging countries, similar to Egypt and Tunisia, which have already undergone all-inclusive banking reforms? Are these requirements essential for nations whose wholesome financial sectors are overly shallow and unexposed to immense market risks? This study will test whether the Basel III rulings are draconian or indispensable for the adequately capitalized banking sectors of Egypt and Tunisia, especially at a time when both nations are endeavouring to rebuild their institutional framework in the wake of their political transitions. Such an analysis is also timely given the need for compliance with Basel III as one of the requirements to raise the credit rating of the affected economies (Taylor, 2010).

There might be a small but growing literature on the impacts and costs of Basel III on developing and emerging economies, yet this is the first attempt to specifically analyse its effect in the Middle East and North Africa (MENA) region. In Section (2) the banking reforms and the efforts exerted by Egypt and Tunisia to adopt Basel II are outlined. Section (3) summarises the stipulations of Basel III. The fourth section gauges the anticipated impacts of Basel III. The last two sections provide a summary of future recommendations and conclude the study.

[10] In July 2010 the Dodd-Frank Wall Street Reform and the Consumer Protection Act were passed with the promise of comprehensive overhauls, strengthening the resilience of the financial sector and protecting consumers of financial products. The reforms targeted the regulation of swaps and derivatives, supervision of Credit Rating Agencies, introducing a consumer protection regulator, increasing corporate governance and granting shareholders the right to decide CEO's bonuses.
[11] The FSB mandate was given and signed by the Heads of State and Government of the Group of Twenty in the London Summit, "Declaration on Strengthening the Financial System" held on 2 April 2009. G20 is a group of finance ministers and central bank governors of the 19 largest economies of the world and the European Union. It is currently charged with restructuring the global financial architecture.

II. Have Previous Bank Reforms Shielded Egypt and Tunisia from the GFC?

After tumultuous episodes of bank failures and non-performing loans (NPLs) the governments of most emerging economies undertook rigorous bank reforms. Among these nations were Tunisia and Egypt, whose governments were required to adopt the one-size-fit-all Structural Adjustment Program (SAP). This program aimed at a uniform privatization of state-owned enterprises (SOEs), raising sources of public finance, lifting subsidies, cutting public expenditure and modernising and/or introducing stock exchanges. The SAPs typically included the full-fledged modernization and liberalization of the financial sector, the floatation of interest rates and the introduction of prudential ratios inspired by the Basel Committee (Harrigan and Hamed, 2010). The mixed outcome of the SAP have led to two main criticisms: first, that the enhancement of macroeconomic performance has come at the expense of the poor's living standards (Amin, 1995) and second, that the precipitous financial liberalisation has resulted in incurable bank failures (Harrigan et al., 2006).

2.1 The Nineties: Sweeping Banking Crises in Emerging Market Economies

In virtually all economies, and especially in emerging nations, banks play a pivotal role in mobilizing savings and channelling them to investors. Until the mid-eighties most central banks in emerging economies imposed strict controls on their banks and pegged their foreign exchange and interest rates. For example, the Central Bank of Tunisia (BCT) required its member banks to receive approval prior to any credit decision. Since Tunisian banks were obliged to hold 20 percent of their assets in the form of government bonds and to channel a fixed portion of their deposits to public enterprises at preferential interest rates, the main function of banks was to collect savings at low costs. To this avail, interest rates were pegged at very low rates, although this substantially subdued national savings. Moreover, excessive lending to the public sector resulted in massive bad debts, which heaped up to 20 percent of the entire loan portfolio by the late eighties (Cook et al., 2005). During the same period, Tunisian banks were severely undercapitalized, whereby the capital adequacy ratio was equal to 4.6 percent, well below the 8 percent ratio required by the Basel I capital rules (Cook et al., 2005). In fact, it was not until 1999, and after a rigorous bank restructuring plan, that Tunisian banks were required to abide by the capital adequacy requirements. The Egyptian case was highly similar, except that the relative deepening of the financial sector gave birth to immense losses of customer deposits to infant shadow savings and loans institutions[12] (Mohieldin, 1995; Bahaa Eldin and Mohieldin, 1998).

The initial phase of the financial liberalisation process in both nations was executed at the same time as the elimination of the requirement for prior authorisation for granting credit (Ben Naceur and Ghazouani, 2007). In addition, foreign banks were unreservedly allowed to enter the market as long as they abided by the capital adequacy stipulations. Yet, in spite of the gradual financial liberalisation since the adoption of the SAP in 1986, Tunisia encountered a dual systemic banking crisis and a foreign exchange crisis in 1991. The banking crisis is estimated to have single-handedly incurred losses of approximately 3 percent of GDP (Laeven and Valencia, 2008). Egypt faced an analogous situation, where it endured a comparable twin-crisis in 1997, exactly six years subsequent to adopting its own version of the SAP, which cost the economy 3.8 percent of its GDP (Caprio, 2005). Notwithstanding the fact that the Central Bank of Egypt (CBE) started to tighten regulatory controls after this blow, the Egyptian economy was battered by an even more difficult twin-crisis in 2003. The precipitous adoption of laissez-faire banking by the CBE led to the abatement of prudential controls, the miscalculation of risks and the disregard of capital adequacy requirements (Bahaa Eldin and Mohieldin, 1998).

The bank failures, which perceptibly surfaced consequent to financial liberalisation, are not confined to the cases of Egypt and Tunisia. During the nineties, 42 intermittent episodes of banking crises plagued EMEs (Laeven and Valencia, 2008), hence launching heated deliberations on the risks of premature financial liberalisation (Caprio and Klingebiel, 1996; Kaminsky and Reinhart, 1999; Gruben et al., 2003). This is because prudential regulations did not travel at the same pace as liberalisation, and supervision was restricted to requiring banks to meet the Basel risk-weighted adequacy ratio (Demirgüç-Kunt

[12] These informal and unsupervised savings and loans institutions took up an Islamic-veiled pretence and embezzled deposits from low and middle-income households in the eighties. Total losses borne by depositors are estimated to be in the neighbourhood of US$ 2 billion.

and Detragiache, 1998). Thus, the incidence of non-performing loans skyrocketed, mostly due to the indulgence in lending to the public sector (Loukil, 2010). Beyond doubt, the financial liberalisation theory argues for improved economic development through financial deepening and accelerating productivity growth and savings (Caprio and Kliengebiel, 1996). However, it increases risk exposure to unruly competition that may be detrimental if not coupled with laborious supervision (Fischer and Chenard, 1997) and if not associated with a marked expansion of financial assets (Hellmann et al. 2002).

2.2 Banking Reforms in Egypt and Tunisia

Generally speaking, the initial response of policymakers after a banking crisis is the rapid swing towards crisis containment and provisional regulatory forbearance. Whilst the short-term reaction may entail bailouts, medium-term responses are normally geared towards a gradual transition to consolidation, mergers and acquisitions (M&A) and stricter prudential requirements. In the long run, bank regulators do not only accentuate the significance of bank capital for bank soundness, but also undertake full-fledged financial reforms (Mishkin, 2003).

By the time that the GFC had erupted, most emerging economies had readily introduced banking reforms in reaction to their previous internal challenges. As a consequence, their banking sectors endured the global financial crisis and emerged from it in better shape than their foreign counterparts. Most of the previous banking reforms in EMEs were introduced over lengthy phases. For example, in response to the 1991 banking crisis, the Central Bank of Tunisia underwent a rigorous reform process during 1991-94, whereby new banks were invited to freely step into the sector. To address the associated foreign exchange crisis, Tunisia concomitantly declared the convertibility of the Dinar in 1992.

But the (1991-94) bank reform increased bank fragility, and hence it was imperative to enhance bank concentration. The total value of additional equity that undercapitalized banks had mobilised amounted to 1.5 percent of GDP and the extra provisions were equal to another 1.5 percent (Laeven and Valencia, 2008). Accordingly, the BCT revoked unconditional free entry in accordance with the Banking Law 2001-65. However, this decree was modified by the 2006-19 Law, making the opening of new bank branches in Tunisia conditional to a set of simplified requirements (Ben Ali and Bechir, 2009). Even though the number of banks in Tunisia may not have changed since the late nineties, recent reforms have resulted in a more diversified ownership[13] pattern, with approximately one-third of the banks having a majority government ownership , nearly one-third owned by domestic private investors, and the remaining owned by foreign private banks. Currently, there are no more development banks, but all Tunisian banks are allowed to perform universal banking activities (BCT, 2010).

Tunisian banking reforms have not resulted in a uniform improvement in the efficiency of Tunisian banks. The best performing banks are the ones that have succeeded in improving their labour and capital productivity, those that have mobilized high levels of customer deposits relative to their assets, and finally the ones which have reinforced their capital adequacy (Ben Naceur and Goaied, 2001). However, the BCT has not yet concluded its banking reforms. In fact, there is need to set up a legal framework that reinforces internal governance, enhances risk management and provides incentives to extend loans to the most productive and job-generating sectors (Ben Ali and Bechir, 2009).

On the other hand, by the late nineties and as a result of the CBE's imposition of minimal capital adequacy standards, the cost of banking intermediation in Egypt has drastically increased. This is not solely attributed to the bank M&A and recapitalisation requirements, but also because of the needs to increase liquidity ratios and to enhance managerial efficiency. However, the costly reforms were worthwhile since in a few years these combined factors have resulted in an improvement in the levels of output (Ben Naceur and Kandil, 2008). But the capitalisation and concentration of the Egyptian banking sector travelled at a slow pace, which is presumably the cause of the 2003 banking crisis (El-Shazly, 2009)[14]. Consequently, the CBE decided to expedite the reforms by adopting a two-phase Bank Reform Plan (BRP). BRP-I lasted from 2004-2008 and rested on recapitalizing banks and increasing banking concentration through voluntary and forced M&As; restructuring and privatizing public banks; rescheduling and recovering bad debts via the newly founded NPL-Unit; and enhancing banking supervision and compliance with capital adequacy requirements through establishing the Banking Supervision Unit (CBE, 2010b). The first phase was successfully completed as the consolidation efforts culminated in the reduction of the number of banks operating in Egypt from 62 in 1998 to 39 as at 2011, as displayed by Table (1).

[13] BCT defines state-owned banks as those with a 34 percent public ownership.
[14] During this crisis, four banks totally failed and were consolidated into one bank, namely United Bank, which was taken over by the CBE. State-owned banks were obliged to purchase three other ailing banks.

Table 1 : Structure of the Tunisian and Egyptian Banking Sectors

	Tunisia				Egypt			
	Commercial	Development	Offshore	Merchant	Public Commercial	Public Specialised	Private Domestic	Private foreign
1998	13	8	8	2	4	3	47	8
2010	13	8	8	2	3	3	26	7

Source : Central Bank of Tunisia, Annual Report, various issues. Central Bank of Egypt, Annual Report, various issues.

The CBE is approaching the end of the BRP-II (2009-2011), which aims at enhancing the soundness of Egyptian banks and upgrading their risk management ability. The plan rests on the following four pillars: restructuring and upgrading state-owned specialized and commercial banks, full compliance of all Egyptian banks with Basel II standards in preparation for the implementation of the future supervisory Basel III requirements, promoting bank lending to small and medium enterprises[15], and strictly applying the international governance standards to the Egyptian banking sector. Except for one single bank, all Egyptian banks currently comply with the minimum legal reserve requirement (LRR) and liquidity ratio requirements, maximum exposure to a single customer and sound duration-gap management.[16] However, by the completion of BRP-II, bank supervision will be extended to reduce country-specific and foreign institution exposure limits. To ensure the strict compliance with these requisites, supervision would be enhanced through close monitoring by the Board of Directors of each banking firm.

2.3 The Aftermath of Reforms: Solid Banking Sectors?

From the aforementioned it is clear that the regulatory agents of most EMEs, including Egypt and Tunisia, have taken strides in reforming their banking sectors to adequately prepare them for the timely implementation of Basel III. In terms of banking fragility, the collective non-performing loans of emerging banking sectors decreased from 9.5 percent to 3.2 percent of total loans since the turn of the millennium (IMF, 2010b). Moreover, loan loss provisions substantially increased in the context of maintaining a predominantly private banking system. But the main caveat that has to be entered is that since risk exposures in EMEs are inherently poles apart from those encountered by industrial nations, these nations oblige an utterly different risk coverage methodology (Hoelscher and Quintyn, 2003).

Yet, bank supervision in Egypt and Tunisia is low when compared to that of other emerging markets. As per the results of the Financial Sector Assessment Programs (FSAP)[17], Tunisia currently exhibits high levels of NPLs amounting to 20.9 percent of total loans. Yet, most of these bad debts are attributed to the overreliance of the Tunisian economy on tourism and its high vulnerability to fluctuations in global demand (Financial Sector Assessment Program, 2006). Also, as displayed by Table (2) bank capital adequacy is much lower in Tunisia in comparison to EMEs. In spite of its low stock market capitalisation and limited level of customer deposits, the relatively high level of Tunisian savings is mainly attributed to forced savings[18] (Ben Naceur and Ghazouani, 2007).

Conversely, even though Egyptian banks show more success in mobilising deposits, the level of national savings has declined due to the important growth of the shadow economy that deprives the government of social security contributions (Wahba, 2009). The BRP has lucratively enhanced consolidation and recapitalisation of the Egyptian banking industry, which currently enjoys a capital adequacy ratio of 14.3 percent, out of which tier (1) and tier (2) equity account for 11.2 and 3.1 percent respectively (CBE 2010a). Yet, the most

[15] This was enacted byexempting bank deposits lent out to SMEs from the 14 percent legal reserve requirement (LRR). The LRR is non-interest bearing, save for times of austerity similar to the GFC, where most central banks rewarded banks an interest rates for balances held in their reserve accounts.
[16] A technique of asset-liability management used to assess interest rate and liquidity risks.
[17] FSAP is a world-wide and country-specific comprehensive analysis of financial sectors jointly conducted by the World Bank and the IMF since 1999. It includes two components: a financial stability assessment, which is the responsibility of the IMF, and a financial development assessment, the responsibility of the World Bank.
[18] Forced savings are involuntary reductions in consumption due to government requirements in the form of pension contributions, national insurance, social security contributions, etc.

challenging predicament is the large bad debt portfolio inherited from the earlier home-grown banking crises, which amounted to 25 percent of the overall bank loan and 12 percent of GDP as at 2008 (Financial Sector Assessment Program, 2008). Even though the NPL Unit at the CBE is currently endeavouring to reschedule private bad debts and has issued long-term government bonds to cover the costs of restructuring and selling the ailing SOEs, the economic slowdown brought by the Egyptian Revolution is apt to further increase bad debts.

Table 2 : Key Banking and Financial Indicators

	EMEs*		Egypt		Tunisia	
	1998	2010	1998	2010	1998	2010
NPL/total loans	11.3	3.2	13.6	14.7	15.5	20.9+
Regulatory Capital/risk weighted assets	7.2	14.7	6.2	14.3	5.8	11
Bank deposits (% of GDP)	110.7	119.1	119.4	148.8	99.2	103.6
Bank loans (% of GDP	74	85.4	90.6	77.7	68.4	75.1
Market capitalization (% of GDP)	25.2	75.3	21	47.8	21.8	23.1
National savings (% of GDP)	18.6	21.6	19.4	17	21.3	23

** EMEs comprise 47 nations (See Appendix 2 for more details).*
This figure is reported by the IMF, but the BCT reports that this figure declined from 17.6% of total deposits in 2007 to 13.2% in 2010.

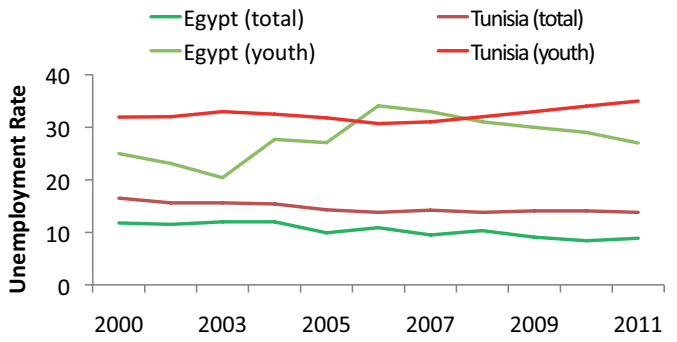
Source: World Bank, IMF, CBE and BCT databases.
- Financial Sector Assessment Program (2006) "Financial sector assessment: Tunisia," A Joint Initiative of the World bank and the International Monetary Fund, (July).
- IMF (2010) Global International Stability Report, IMF, Washington D.C.
- S&P Emerging Stock Market Fact book.

Notwithstanding the fact that the overall banking performance has improved, when compared to their counterparts in EMEs, neither Egyptian nor Tunisian banks fare well in regard to the volume of bank loans. This is mainly due to the bankers' risk averseness and weariness of accumulating more NPLs. In view of the massive NPLs in Tunisia, the pattern of lending has been severely altered, ruling out public sector firms that had prior full access to the cheapest funds, yet were accountable for the bulk of bad debts. Having been held accountable for their previous bad debts, even the most creditworthy small and medium enterprises (SMEs) find it challenging to access bank funds (Bahlous and Nabli, 2000). Hence, the Tunisian Bank for Financing Small and Medium Enterprises was established in 2005 to cater to the credit needs of SMEs.

Similarly, even though most Egyptian bad debts are carried over from previous bank crises, the historical NPL-trepidation has resulted in the decline of the loan-deposit ratio to a historically subdued level of 52 percent as of December 2010. Hence, Egyptian banks fall short of properly serving their prime function of financial intermediation. All the more, empirical studies reveal that since state banks monopolise around 50 percent of banking assets, the Egyptian banking sector suffers from intermediation inefficiency, whereby only 61.5 percent of bank inputs are necessary to produce the current output levels (Ben Naceur et al., 2009). Further studies also reveal that the type of ownership drastically affects the level of efficiency, where public banks are the least efficient and private domestic banks are most effectual in triggering GDP growth and in creating jobs (El-Shazly, 2009; Abdel-Baki, 2011). If anything, this provokes the need to expedite the transfer of bank ownership to the private sector and to set forth quality standards for Egyptian banks. Also, as displayed by Figure (2), the persistently high unemployment rates tainting both economies, have resulted in continuous protests

by the jobless youth in Egypt and Tunisia, even after the twin Revolutions. Hence, it is advisable that new bank reforms induce lending to these job-creating sectors, as long as their creditworthiness is solid. SMEs are quite vital for the entire MENA region. Suffice it to say that both formal and informal SMEs account for more than 80 percent of employment in Egypt's non-agricultural private sector.

Figure 2: Unemployment Rates in Egypt and Tunisia (2000-2010)

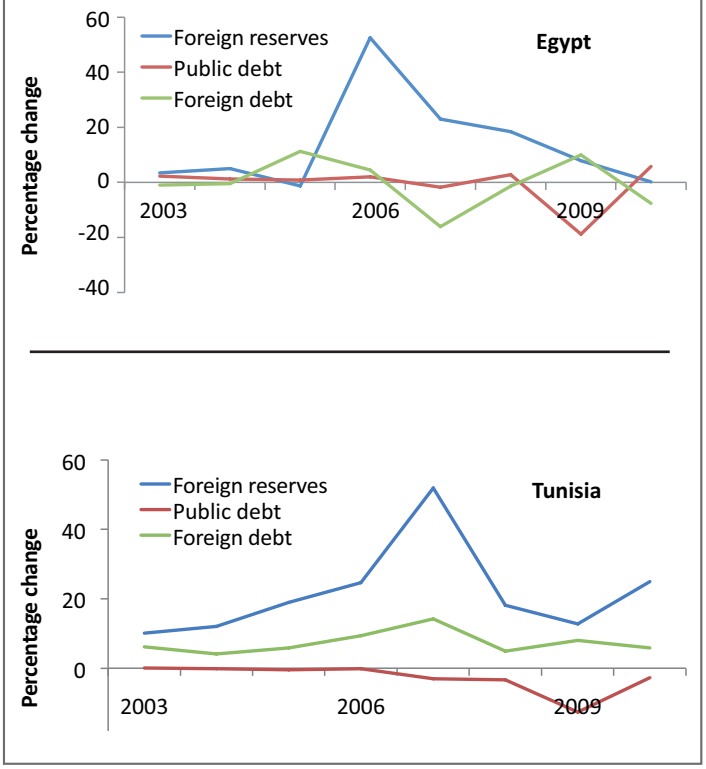


Source: - IWorld Bank database.

2.4 Resilience of Emerging Economies to the Global Meltdown

But what are the salient features that have enabled emerging countries to prevent a full pass-through of the crisis to their economies? Prior to the global meltdown, fiscal and monetary agents of EMEs had already run the gamut of successful reform measures whether in regard to macroeconomic markets or in the design of social policies. Emerging markets' central bank international liquidity indicator[19] went from one to two during the first decade of the millennium. This was because most of these nations built up sinking funds right after their successful banking reforms and were able to apply counter-cyclical policies to combat the downturn of the business cycle (Griffith-Jones and Persaud, 2008). Among the most successful were Latin American nations, especially Chile, which benefited from the boom phase of world copper prices. Due to the previous difficult experience of sudden capital outflows from their infant financial markets, governments of emerging economies have built up international reserves. As indicated by Figure (3), both Egypt and Tunisia managed to accumulate foreign reserves during the tourism boom that preceded the GFC.

Figure 3: Foreign Reserves and Debt Service in Egypt and Tunisia (2003-2010)



Source: - IWorld Bank database.

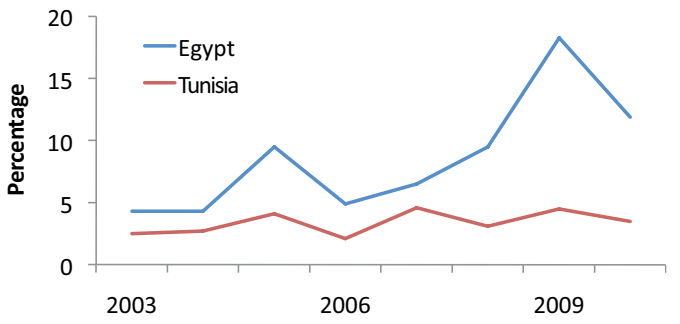
2.5 Fiscal and Monetary Policies in the Wake of the Global Financial Crisis

In view of the relative resilience of the Egyptian and Tunisian economies, fiscal agents of both nations did not have to take measures as aggressive as those adopted by their western counterparts, but their interventions aimed to extinguish the fuming flames of the anguished unemployed. Since Tunisia continued to enjoy buoyant tourism revenue, high phosphate and iron ore receipts and satisfactory remittances in 2009, its fiscal stimulus package was as low as 1.4 percent of GDP. However, the global financial crisis led to the surge in the level of unemployment. In response to the incessant violent protests by the unemployed youth, the Tunisian fiscal agent infused 4.6 billion dinars – US$ 3.3 billion – in 2009 to create 16,000 new state jobs and to raise civil servants' salaries by 8 percent. The situation in Egypt was further aggravated by the untameable inflation, as per Figure 4, which prevented the central bank from adopting aggressive monetary policy. In this vein, during

[19] This is defined as the ratio of international reserves to outstanding one year debt amortizations and central bank short-term foreign liabilities.

2009-2010, the previous Egyptian government pumped US$ 2.8 billion in fiscal stimulus.

Figure 4: Inflation Rates (2003-2010)



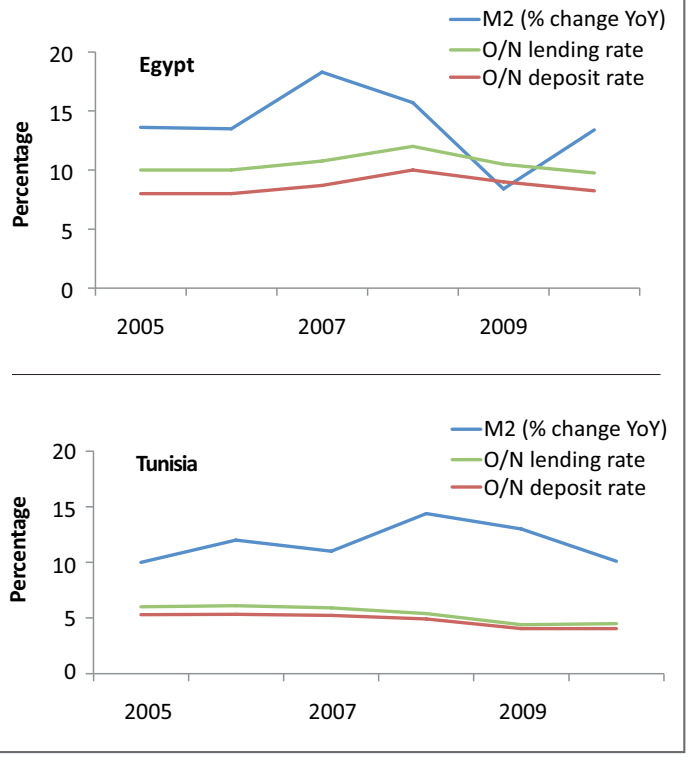
Source: IMF Database.

Yet, these fiscal expenditures should not be viewed as pure responses to the GFC per se, but more as indispensable means of stabilizing the economy and restoring social cohesion. Given the unfathomable inflation rate haunting Egypt and the double-digit youth unemployment rates irking Egypt and Tunisia, both governments have belatedly adopted integrated social policies that treat poverty alleviation, human and socioeconomic development as interrelated issues. In the case of Egypt a minimum of 6 percent GDP growth is required to absorb new entrants into the labour force (Oxford Business Group, 2011).

In true fact, monetary policy was the prime means of responding to the crisis. It must be mentioned at this point that for both monetary agents the overriding and explicit short-term goal is price stability. While the BCT targets the consumer price index (CPI), the CBE adopted core inflation measurements as its target as of November 2009. Both central banks utilise the overnight inter-bank rate as the operational tool, i.e. the monetary instrument that helps in achieving price stability. Moreover, the auxiliary long-term monetary assignments are non-inflationary GDP growth and job creation. Open market operations (OMO)[20] are usually employed to help achieve both the nominal anchor as well as the ultimate long-term goals of growth and job generation.

Figure (5) shows that the two central banks employed aggressive tools of monetary policy amidst the crisis. Starting 2008, the overnight rate has been on the decline. To expedite and facilitate cheaper lending to banks, the BCT cut the discount rate[21] from 5.25 percent to 4.5 percent in February 2009. The Egyptian monetary agent was unable to reduce its discount rate prior to extinguishing the inflationary pressures. Hence, in spite of hostile comments and strident criticisms, the CBE initially resorted to increasing its discount rate by 0.5 percent at the very same time that every single central bank was vehemently slashing its rate. It was not till 2009 when inflation started to unwind, enabling the CBE to cut its discount rate six consecutive times during this year. M2 was concurrently expanded to pump liquidity from the banking system into the real economy. Additionally, the BCT reduced its legal reserve requirement (LRR) in December of 2008. The CBE followed a slightly different method, exempting any deposits against which loans are extended to SMEs from the LRR. If anything, this reveals that monetary agents in these emerging economies have proficiently used monetary tools and that the interest rate channel is lucratively operative. Being granted more autonomy, the CBE and the BCT can take advantage of the monetary transmission mechanism to transmit their policies to the real economy. But what remains is the importance of the supervisory role of these agents in reducing systemic risks.

Figure 5: Monetary Policy in Egypt and Tunisia (2005-2010)



Source: - IWorld Bank database.

[20] OMO is the process by which the central bank of a country sells or purchases government debt instruments on the open financial markets to influence money supply and interest rates.
[21] This is the interest rate that central banks charge depository institutions that borrow reserves from them.

III. The Basel Accords from the Perspective of Emerging Market Economies

Although liberalised financial markets might expose domestic economies to increased risk and volatility, many economists and policymakers are still weary of the costs of bank recapitalisation and dubious about the benefits of stringent regulatory controls. With the wide acknowledgment of the risks inherent in financial market liberalisation, the central intellectual battle over the effects of capital market liberalisation is reshaping many policies and ideologies. Among the critical policy debates is the efficacy of capital requirements in avoiding systemic risks and enhancing macroeconomic management. But the question that immediately poses itself is: If Basel I and II did not adequately shelter the global economy, then what guarantees that Basel III will? In order to answer this pressing question, it is indispensable to first shed light on the previous versions of the capital adequacy requisites.

3.1 Basel I and Basel II: Potency for Emerging Markets or Catalysts for Hot Money?

In the wake of the petrodollar investment financial boom, and the relocation of banks to countries with more lenient banking rules, recurrent banking crises intensified, urging regulators in the G10 nations to place banking capitalisation standards at the forefront of their agendas. During the eighties, the Basel Committee on Banking Supervision decided to issue a set of recommendations on banking guidelines. Ever since, banking has indubitably become among the most regulated sectors in the world, and bank capital rules have grown to be the most prominent aspects of bank regulation.

The Basel Accord on Capital Standards, or simply Basel I, was drafted by the Basel Committee in 1988 and enforced by the G10 nations in 1992, with Japan being a laggard adopting the accord as late as 1996. This first vigorous international convergence had required banks to maintain enough capital in order to absorb losses without causing systemic problems. Basel I was initially intended to apply to large and active international banks, and ruled out banks that lacked the necessary wherewithal to cover risk exposures. Moreover, it solely focused on the adequate coverage of credit risk exposure, requiring banks to keep capital equivalent to 8 percent of risk weighted assets (RWA). Bank assets were classified into five broad categories, where the lowest was sovereign debt carrying zero risk, and the highest was corporate debt carrying 100 percent credit risk exposure. The main reason for exempting emerging economies from adopting Basel I was the fear of creating a false sense of security. This is because Basel I did not mandate for the lack of customer deposit insurance nor did it guard against fluctuations in the domestic currency, interest rates or macroeconomic downturns. Yet, a number of emerging economies espoused the rulings by the mid-nineties, as an additional measure to assure the world that they were benchmarking their financial markets against internationally acceptable standards (Rojas-Suarez, 2001).

But the main concern of advanced economies was that the restricted scope and generalized language of Basel I gave banks unwarranted flexibility in the interpretation of its rules, allowing financial institutions to take in appropriate risks and to hold unduly low capital reserves (BCBS, 1988). This characteristic of Basel I was in many instances misused by bankers to evade the dilution of the return on equity for banks. Also, most foreign banks and non-banking financial institutions, which were responsible for the most viscous risk exposures, were not required to abide by Basel I (Jenkins and Masters, 2010).

Since the trepidation of a boomerang effect was leering in the air, Basel II, the second of the Basel Accords, was introduced in 2006 to cover credit, operational and market risk exposures. This was deemed effectual in ensuring that banks hold the necessary capital that would safeguard their solvency and resilience to financial shocks. Basel Accord II extended the girth and exactitude of Basel I, to cover factors such as market-based discipline, surveillance and regulatory mandates, many of its mandates were excessively long and complex (Hayes et al. 2002). Moreover, since the architects of Basel II were financial economists who embedded their theories and premises in resourceful mathematical models, and mapped them onto real data using sophisticated statistical techniques, the ratios that they employed were nothing more than inert measurements, frequently overlooking inherent systemic risks and indiscernible looming market peril (Krugman, 2009). Therefore, in view of the inability of Basel II to provide adequate shelter to the banking sector, it is quite perceptible that its character was pro-cyclical rather than counter-cyclical.

3.2 Basel III: Finally Addressing the Circumstances of Emerging Economies

However, the main condemnation directed by EMEs to the Basel Committee was that global regulators neglected the special circumstances of their economies. The high risk weight attached to long-term emerging market bank debt encouraged hot money transactions, hence leading to the haemorrhage of foreign funds and the near financial collapse encountered during the 1994-Mexican Tequila Effect, the 1997-Asian Crisis and the 1988-Russian calamity (Persaud, 2003). Moreover, the overestimation of the risks of commercial and sovereign loans to EMEs, aggravated intermediation costs and substantially reduced the loan-deposit ratios in EMEs. This struck a chord with the complaints of multinational corporations that were obliged to finance their offshore operations in developing nations from their head office domicile (Griffith-Jones and Persaud, 2008).

Until the outbreak of the global crisis, the Basel Committee on Banking Supervision was comprised of central bank representatives from thirteen OECD countries.[22] In this set up emerging and developing countries felt their interests were not adequately represented (Grynberg and Silva, 2006). But in view of their rising role in international trade, EMEs started to voice their interests through the G20 as well as in the arena of global monetary and financial affairs. Thus, the pressures intensified to embrace the muted concerns of EMEs amidst the drafting phase of Basel III. The largest EMEs are now involved in conducting an emerging market-centric assessment of the future precautionary global governance measures, especially given the unfathomable risks imposed by the newly invented financial instruments and the traders' lust for profit. As shown by Figure (6), the membership of the Basel Committee has increased to comprise 27 member-nations.

3.3 Specifications of Basel III

The forefront of efforts to decipher the crisis of the complex financial assets and to measure the assortment of the risks inherent in the new financial architecture helps governments to avoid future crises. The efforts were instigated by the G20, which established the Financial Stability Board to join the Basel Committee on Banking Supervision in drafting Basel III. The newly-created assemblage is designed to provide a setting where governments can compare policy experiences, identify good practices and co-ordinate domestic and international policies. In order to ensure the construction of an all-embracing globally homogeneous financial structure bankers and regulators from around the world were involved in drafting the final version which was released December 2010[23].

Figure 6: Membership of the Basel Committee on Banking Supervision

Source: Bank for International Settlements

The deliberations were completed at the close of 2010, albeit that its rulings will be phased-in between January 2013 and January 2019. However, the banking industry is already sounding alarms that the capital requirements will create an earnings shortfall and drive up the cost of securitization and structured financing. The International Institute of Finance (IIF)[24] contends that the implementation of Basel III would cut economic growth over the next five years in the United States, the Euro Zone and Japan by 3 percent, and is apt to shed 10 million jobs (IIF, 2010). The Quantitative Impact Study (QIS)[25] conducted by the Bank for International Settlements, however, demonstrates that after the implementation of the strengthened capital requirements proposed by the Basel Committee annual growth rates will fall by 0.03 percent for 35 quarters (BCBS and FSB, 2010). In other words, at the end of the eight year period, GDP is expected to fall by only 0.22 percentage points below its baseline level. Then, due

[22] Till 2008, BCBS members comprised of Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom and the United States.
[23] Three consultative documents were circulated soliciting comments throughout 2010: Strengthening the Resilience of Banking System, International Framework for Liquidity Risk Measurement, Standards and Monitoring and Principles for Enhancing Corporate Governance.
[24] IIF is an informal global institution comprising more than 400 of the largest banks, insurance companies, and investment firms. It provides a forum of dialogue connecting policy-makers, regulators, and financial institutions.
[25] A total of 263 banks from 23 jurisdictions participated in the QIS. This included 94 Group 1 banks (i.e. with CET1 capital above €3 billion, are well diversified and are internationally active) and 169 Group 2 banks (i.e. all other banks). The results showed that CET1 of Group 1 banks was 5.7% and 7.8% for Group 2 banks.

to the reinforcement of the banking sector and the decline in the incidence of financial crises, the global economy will enjoy an annual growth of 0.03 percentage points above the baseline scenario (BCBS, 2010a).

This dispute that produces polar outcomes has triggered further studies that challenge both results. Hence, it is imperative to conduct a thorough forecast of the costs and benefits, focusing on the specific case of each country. But it is advisable to first throw light on the three pillars of Basel III, namely: augmenting (1) capital, (2) liquidity and (3) corporate governance, which will gradually be phased-in to improve the ability of the banking sectors to withstand periods of economic and financial stress.

3.3.1 Enhancing Prudential Capital Requirements

The Basel III Framework covers both micro-prudential and macro-prudential elements, setting out higher and better-quality capital as well as wider risk coverage. Similar to Basel II, the New Basel Capital Accord rests on the following three pillars:

- Pillar 1: Minimum Capital Standards
- Pillar 2: Supervisory Review Process
- Pillar 3: Market Discipline

Among the reasons behind the failure of Basel II in providing adequate shelter for banks is that it ignored the risks inherent in the pro-cyclical nature of the economies that house highly leveraged firms and complex financial instruments. Under the new minimum capital regulations, Tier 1 Capital[26] will mainly comprise of common equity, which includes common shares and retained earnings. Tier 2 capital will be simplified by eliminating the distinction between Lower and Upper Tier 2. Its instruments will have a maturity of at least five years, to be amortized on a straight-line basis, whilst avoiding accelerated repayment of the principal or coupon amounts except in insolvent liquidation. Tier 3 capital, which used to cover market risk, will be totally eliminated.

The new proposals address the quality, consistency and transparency of the capital base, placing more emphasis and regulatory adjustments to Tier 1 Capital[27], increasing risk coverage requirements, and enhancing transparency. As per Table (3), minimum capital requirements will be phased in starting 2013 and fully installed on January 1, 2019[28]. All minimum capital ratios are calculated as a percentage of risk-weighted assets.

Table 3: Timeline of Phasing-in the Minimum Capital Requirements

Minimum Capital Requirements	2013	2014	2015	2016	2017	2018	Jan 1 2019
CE (Common equity)	3.5%	4%	4.5%	4.5%	4.5%	4.5%	4.5%
CET 1 (Common Equity Tier 1 Capital)	4.5%	5.5%	6%	6%	6%	6%	6%
CCB*	-	-	-	0.625%	1.25%	1.875%	2.5%
CcB (Counter-cyclical buffer)**	0-2.5% Depending on the severity and stage of the business cycle						
CE+CCB+CcB	3.5%	4-6.5%	4.5-7%	5.125-7.625%	5.75-8.25%	6.375-8.875%	7-9.5%
Total Capital	4.5-7%	5.5-8%	6-8.5%	6.625-9.125%	7.25-9.75%	7.875-10.375%	8.5-11%

.. Highlighted figures indicate the compulsory implementation dates.
** Capital Conservation Buffer (CCB) is a fund the bank can draw on during times of economic stress*
*** CcB is used when excess aggregate credit growth is judged to be associated with systemic risk. The Basel Committee stipulates that it should be infrequently used, once every 10-20 years.*

Source: BCBS (2010) Results of the Comprehensive Quantitative Impact Study, Bank for International Settlements, Basel.

[26] The new definition of Tier 1 capital is closer to the definition of "tangible common equity," which, during the financial crisis, has become the de facto indicator for investors of capital strength.
[27] Tier 1 capital is that part of a bank's regulatory capital which is fully loss absorbent on a going-concern basis, whereas Tier 2 capital is expected to bear losses in case of insolvency.
[28] Many jurisdictions have conducted stress testing for their SIFIs (Structurally Important Financial Institutions) and decided that they need higher capital. For example, the Swiss Union Bank of Switzerland and Credit Suisse are required to hold CET1 of 10%, which Credit Suisse will introduce by the end of 2011 and UBS by 2012.

The new accord is designed to be an internationally consistent instrument shielding economies against the incidence of system-wide risk, something that the veneer of their shallow capital was unable to deliver. To this avail, it will ensure that the banking system has a buffer of capital to protect it against future potential losses. Also, as a supplement to the capital requirements, a leverage ratio is introduced to serve as a backstop to additional risk exposures to derivatives and off-balance sheet (OBS) activities. Based on historical experience uniform credit conversion factors (CCFs)[29] of 10 percent are currently deemed by the BCBS as sufficiently conservative. The leverage ratio will be gradually phased in over three stages as follows:

- The first stage lasts from 2011-2012 and will solely include supervisory monitoring and developing templates of the underlying components of the leverage ratio till the global financial system is geared up to full recovery.
- During the transition or parallel run period, lasting from 2013-2017, the Basel Committee is proposing to test a minimum Tier 1 leverage ratio of 3 percent. The parallel run period will give the BCBS ample time to assess whether the calibrations are appropriate over a full credit cycle for different banking categories.[30] Yet, the disclosure of the leverage ratio and its components will start on January 1, 2015 and any final adjustments should be carried out during the first half of 2017.
- Full adoption of the leverage ratio will be enacted on 1 January 2018.

3.3.2 Strengthening Prudential Liquidity Regulations

Prior to the crisis, many banks and financial institutions used short-term wholesale funding, which posed serious threats to their survival once these short-term markets dried up. Systemic liquidity risks were not recognized by the previous accords, which required unprecedented intervention and bailouts of systemically important banks by governments and central banks during the crisis. For this reason, Basel III adds a liquidity requirement to help avoid and mitigate systemic liquidity risks. While these requirements are standardised for banks, national regulators are at liberty to apply more stringent requirements.The Basel Committee has proposed sets of standardized quantitative requirements to enhance liquidity buffers in the banking system: the liquidity coverage ratio (LCR), and net stable funding ratio (NSFR). The former will be introduced during the period 2013-2014 and the latter in 2015, after observation periods starting in 2011 and 2012 respectively.

LCR is intended to ensure that banks can survive a severe stress situation lasting for around one month, either attributed to an institution-specific or a systemic shock.[31] Banks are required to maintain two tiers of high-quality liquid assets that can be converted into cash to meet their liquidity needs for a 30-day time horizon in times of stress. Tier (1) assets comprise cash, central bank reserves and high-quality sovereign debt. Tier (2) assets include high-quality corporate and covered bonds, with a minimum AA- credit-rating, and non-zero-risk-weighted sovereign debt.[32] These assets are limited to 40 percent of the overall stock of liquid assets and are subject to haircuts.

On the other hand the NSFR metric should provide banks with reliable sources of funds over a one-year horizon under extended idiosyncratic stress. It is calculated such that the ratio of available stable funding (ASF) to required stable funding (RSF) exceeds 100 percent.

$$NSFR => \frac{ASF}{RSF}\ 100\% \qquad (1)$$

The following are the four categories of stable funding sources:

- Tier (1) capital and liabilities with effective maturity of one year or longer
- Tier (2) capital and liabilities with effective maturity of one year or longer
- Stable deposits of retail and small business customers, less unstable deposits of retail and small business customers
- Wholesale funding provided by nonfinancial corporate customers. Table (4) summarises the time line required for phasing-in all requirements of Basel III.

[29] CCF is a fraction of OBS exposure that must be treated in as on-balance sheet.
[30] For example, systemically important banks will have higher loss absorbing capacity compared to other banks.
[31] Examples of these shocks are credit rating downgrades, deposit runs, shortages of unsecured funding, haircuts for secured funding, or extra collateral for OBS items.
[32] These are issued in foreign currency that matches the currency needs of the banks' operations in the country.

Table 4: Basel III Regulatory Measures

	2013	2014	2015	2016	2017	2018	Jan 1 2019
Capital Requirements							
• **Capital**	8%	8%	8%	8%	8%	8%	8%
• **CCB**	-	-	-	0.625%	1.25%	1.875%	2.5%
Liquidity Requirements							
• **LCR***	Introduction		←	Full implementation		→	
• **NSFR****		Introduction		←	Full implementation		→
Leverage Ratio		←	Parallel Run Period		→	Pillar 1 (3%)	

** LCR or Liquidity Coverage Ratio ensures that banks survive a severe stress situation lasting around 30 days.*
*** Net Stable Funding Ratio provides sources of funds over one year under extended idiosyncratic stress.*

Source: Basel Committee on Banking Supervision (2010) A Global Regulatory Framework for More Resilient Banks and Banking Systems, BIS, Basel.

3.3.3 Intensification of Corporate Governance

In order to ensure the strict implementation of the aforementioned requirements, the Basel Committee on Banking Supervision today requires banks and financial institutions to install prudent internal supervision and corporate governance (CG) requirements. Moreover, it will be the role of central banks to regularly evaluate the corporate governance policies of banks and their prudent implementation of the Basel Committee's principles (BCBS, 2010b). The CG Principles focus on enhancing internal supervision through the following six avenues:

- The responsibilities of the board of directors (BoD) should be adequately exercised and effective oversight of senior management must be exercised to ensure the proper implementation of the bank's business and risk strategy, organization, financial soundness and governance. The roles of BoD will not be confined to monitoring the overall business strategy of the bank and linking remuneration and compensation to profitability. More importantly, it will oversee the proper implementation of the bank's overall risk strategy, designing risk management policies to maximize risk tolerance, embedding an internal controls system to ensure risk compliance (Committee of European Banking Supervisors, 2010).
- Senior management is held responsible for the extent of risk tolerance, overall bank strategy and polices of the board.
- The appointment of a risk management department to act as an independent unit, albeit possessing necessary timely communication with the board.
- Board member and senior management remuneration has to be properly set forth according to national and Financial Stability Board guidelines (FSB, 2009).
- The adoption of a transparent corporate structure by the board and the senior management.
- Disclosure and transparency are the most important methods of a sound CG practice.

The concept of CG is new to Tunisia and the transparency requirements on companies have only been recently introduced by the 2005 Law on Financial Transparency. To further strengthen financial supervision, the authorities adopted the new Banking Law for Promoting Good Governance and Improving Credit Culture in 2006.

3.3.4 Impact on the Banking Sector

The capital and liquidity regulation requirements of Basel III would massively affect the industry's capitalization and funding levels. For the collective EMEs, the entire banking industry would need to raise an additional 40 to 50 percent of its current Tier 1 capital base, or some €400 billion, and €460 billion inclusive of the leverage ratio. Furthermore, the banking industry would have to hold an additional €900 billion in highly liquid assets and €1.5 to €2.5 trillion in long-term funding[33].

[33] These estimates rely on the current bank balance sheets and do not take into account expected changes to financials or other mitigating actions that banks might take before the actual implementation of the proposed rules. However, the ultimate capital shortfall could be smaller since banks will change their business mix to reduce risk weights and some other effects will be automatically solved over grandfathering periods.

IV. The Model: Gauging the Impact of Basel III on Egypt and Tunisia

It was not till the November 2010 Summit Meeting that the G20 recommended that the Basel Committee evaluates the impact of regulatory regimes with an emphasis on low income countries[34]. The impending regulations are apt to decelerate GDP through the following three transmission effects or channels:

- The credit channel will inhibit the flow of funds to households and investors since banks would be inclined to reduce risk-weighted assets, to retain profits and to raise more equity.
- The interest rate channel will stifle liquidity in the money market since banks will be obliged to keep wider interest rate spreads. Moreover, the higher costs of acquiring interbank funds are expected to raise the cost of borrowing for households and businesses.
- The foreign exchange channel is apt to worsen the terms of trade and to decrease net exports, hence seriously impacting the balance of payments.

4.1 Methodology and Data Collection

The imposition of Basel III will mitigate risks and hence, the decreased incidence of bank failures will sustain growth. Using multiple regression analysis, the transmission effects impacting the economy after abiding by the requirements of Basel III, are estimated. In order to eliminate the effects of the external shocks exerted by the revolutions and the associated national debts, the only transmission effect that will be gauged is through the credit channel. In actual fact, ever since the global financial crisis the effect of the credit channel has outweighed all other channels, making it worthwhile to focus on the pass through effects of this channel (Bayoumi and Melander, 2008; Disyatat, 2010; Cappiello et al., 2010). However, it is highly recommended that future research expands into an all-inclusive treatment of the pass through effects via the additional interest rates and foreign exchange channels.

Appendix (6) details the model employed, whereby two scenarios are compared: the baseline scenario includes the imposition of the full credit, liquidity and leverage ratios, while the alternative scenario removes the leverage ratio requirement. It also forecasts the recovery period from the imposition of the Basel III rulings.

4.2 Interpretation of the Results

In order to standardize and compare data on one common yardstick scale, Z-scores are used. Each z-score describes how much a point deviates from a mean or specification point. The results are segregated for each of Egypt, Tunisia and the aggregate 47 EMEs – including Egypt and Tunisia. Results from the baseline regression reveal high Z-score for banks with more equity. Also, higher Z-scores are observed for banks operating in countries with high levels of GDP per capita growth. Z-scores for Egypt are higher than those of EMEs. Tunisia also records a relatively high Z-score, albeit lower than Egypt. The coefficient of the Basel III compliance is positive. Once the leverage ratio is removed, R2 rises from 11 percent to 19 percent and the fit of the model improves. This implies that Egypt, followed by Tunisia, is much less impacted by the rulings of Basel III in comparison to emerging markets.

In spite of the fact that Egyptian banking sector is adequately prepared to meet capital adequacy requirements, the perplexing finding is that Egypt is slower to recover from the shock (almost 4 years) in comparison to Tunisia (3 years and 10 months). In comparison, emerging market economies require only 3 years and 6 months to fully absorb the shock. There are three combined factors that explain this result. First and foremost, the fact that Egyptian banks have not yet recovered from the memory of bad debts has blemished Egyptian banks with an astonishingly low loan/deposit ratio. Actually, this low ratio is expected to further continue given that Egyptian banks would prefer to keep their assets in the form of the high yield sovereign bonds. Moreover, as a means of mobilising funds to finance the huge public expenditure, the CBE encourages its banking sector to hold Treasury Bills and counts them towards the LRR. The second reason behind the slow recovery is the sovereign rating, whereby Egypt was downgraded several times by the three major credit rating firms to stand at 4 levels below the investment category, while Tunisia at only 2 levels below the investment

[34] The BCBS asked its Policy Development Group to perform this task in close cooperation with the Bank for International Settlements, and to finalise its recommendations in time for the November 2011 G20 Summit. Conversely, and equally important is the issue of higher capital required by the systemically important financial institutions (SIFIs), especially the globally important ones (G-SIFIs), whose disorderly failure, because of their size, complexity and systemic interconnectedness, would cause significant national and/or global damage.

category. This indicates that the cost of borrowing for Egypt is going to skyrocket, further impeding growth. It must be also mentioned that the sterilization policy followed by the CBE has commendably stabilised the foreign exchange rate of the Egyptian Pound, but has eaten away more than 50 percent of the foreign reserves in one year. The third reason behind the relatively slow recovery of the Egyptian economy is the high level of inflation that is the result of the overdependence of the economy on food imports, the prices of which are expected to keep on rising as world demand increases.

Hence, the results and the findings of the model clearly indicate that the Basel III one-size-fits-all policies are inapposite, especially that the literature provides evidence that the strengthened capital and reinforced supervisory agencies under Basel II have neither improved bank intermediation efficiency nor reduced corruption in lending.

4.3 Caveat: Additional Indirect Impacts of Basel III

The economic slowdown is not the only change that is expected to affect the macroeconomic performance in both nations. Primarily, the pro-cyclical nature of hot money flowing into emerging financial markets has proved detrimental at the time of crises, causing what is known as a "double shock", which is attributed to the massive outflows of foreign funds in addition to the impact of the external financial crisis. This allegedly increases risk exposure of investments in emerging financial markets in comparison to those solely confined to deepened and developed markets (Claessens, 2010). Thus, the resulting higher interest rates will ultimately end up in the birth of shadow banking activities. Moreover, banks might change portfolios and transform risk buckets to less regulated jurisdictions or sectors to minimise losses due to capital requirements.

A second effect would arise from the downsizing of investment banking activities. Bank customers would be tempted to take on additional risks outside the banking system; they might also take their refinancing needs to the unregulated shadow financial system, which is apt to increase systemic risk. Also, as a means of reducing RWAs smaller enterprises will be denied access to credit, which is especially detrimental for the economies of Egypt and Tunisia where SMEs are the strongest engines of GDP growth and job generation.Thirdly, the constraints on interbank funding might cause liquidity strains in the market, wherein central banks may have to act as providers of liquidity.

Another problem specifically awaiting Egyptian and Tunisian banks in the wake of the drop in their tourist proceeds is the ultimate decrease of corporate demand for products and services from global and local providers alike. The deceleration of export revenue is expected to deprive banks considerable corporate banking business, reducing their abilities to retain profits as a means of fortifying capital requirements.

V. Policy Implications

At the time when this paper was finalised the world economy was gradually recuperating from an obdurate financial meltdown and an intricate economic downturn of a magnitude not experienced before. But the ominous jobless recovery overshadows the optimism of a bull market. The consequences of the crisis suggest that the slowdown in growth among emerging market economies was of less severity than in the OECD area. The growing resilience of these emerging economies stands as vivid testimony that the early introduction of banking sector reforms and austere supervision of their financial markets has undoubtedly allowed them to weather the crisis (OECD, 2008). Yet, complementary measures and structural policies across a range of economic policy areas may be required. The need for enhancing regulatory controls does not necessarily support the common apprehension that global free-market capitalism has come to an end.

Previous financial crises have long demonstrated that crises beget legislation. However, the recent regulatory changes introduced by Basel III represent a long overdue response to the evolution of the global financial industry.[35] Even though fiscal stimuli are generally acclaimed, there is greater scope for future expansions beyond income support measures and tax cuts to public investing on renewable clean energy, which is apt to provide significantly greater employment effects (UNDESA, 2011). To ensure the avoidance and mitigation of future crises, reforms have to be introduced at the global level and unanimously enforced by all jurisdictions. However, it must be taken into consideration that whilst the global reforms apply to a highly interlocked financial system, domestic policies need to be designed in accordance with the levels of depth and the rates of integration with the global financial sector. Analogous to the special treatment of SIFIs, which defies the one-size fits-all paradigm, the less exposed and the less globally integrated emerging financial markets should maybe be required to provide lower capital and buffer cushions.

5.1 Global Policies

The recent crisis has resulted in the significant spill-over of risks between the financial sector and sovereigns. Undoubtedly, the prudent fiscal and monetary policies that were followed in the wake of the global meltdown have mitigated the impact of the crisis, but this has come at the cost of higher national debt to GDP ratios. Hence, the primary objective of Basel III is to reduce the likelihood and severity of future financial crises. This will be attained through providing a solid liquidity and leverage framework to withstand future shocks, thus minimising the need for fiscal support. To ensure that no future shock of such devastating impacts is repeated, an all-inclusive global reform process should rest on the following four pillars.

- Designing differential capital, liquidity and leverage requirements depending on the levels of maturity and integration of financial markets.
- Unanimous compliance by the stipulations of Basel III requirements by all jurisdictions and for the regulated and unregulated banking sectors.[36] Hence, instead of banking regulators focusing on individual institutions, the shadow banking sector[37] should be captured so that the opaque financial vehicles could not interact in a manner that amplifies systemic risks.
- Restructuring the entire domestic financial infrastructure to reduce systemic risks, which have proved highly contagious in an interlocked global financial order.
- Establishing an intergovernmental macro-prudential oversight institution similar to the European Systemic Risk Board to avoid the occurrence of systemic financial risks.[38]

5.2 Domestic Policies

Egypt and Tunisia face specific policy issues and challenges that require specific national policies. These vary from sounder monetary

[35] Since the introduction of Basel Accord I in the late eighties, the original founder nations of the Basel Committee have witnessed more than 30 episodes of financial crises.
[36] Even though most of the problems emanate from the shadow banking system, most responses have been primarily concerned with the banking sector and financial institutions.
[37] Shadow banking was among the key mechanisms that propagated the crisis, but significant parts of the shadow banking system were financed, created and sponsored by the regulated banking sector. Examples are: structured investment vehicles (SIVs), money market mutual funds (MMMFs), asset-backed commercial papers (ABCPs), and hedge funds.
[38] Parallel to these reforms, all derivative contracts need to be centralised and cleared through a central global clearance of derivative contracts. This should apply to both regular derivatives as well as over-the-counter (OTC) derivatives and must be made accessible to supervisors.

and fiscal policies to correcting the deficiencies inherent in sustainable and effective financial architecture and regulation. While interventions by both Tunisian and Egyptian authorities have been effective in maintaining short term stability, future policymakers must try to strike a balance between regulation and self-governing markets.

If inefficient, regulation can be invasive. Financial engineering and innovation have taken strides during the last two decades causing regulation to substantially lag behind. Specifically in emerging markets like Egypt and Tunisia, regulation is vulnerable to banking industry capture and exposed to pressures exerted by lobbyists and political cronies. In this vein, domestic regulation should provide incentives and guidance to private entrepreneurs to reduce risks of their business activities that could spill over and convert into systemic risks.

VI. Conclusion

The intention of this study it is to conduct a simulation of the impact of Basel III on the economies of both nations. The results of the study reveal that Egypt is the less impacted and faster to recover from the shock in comparison to Tunisia. This is largely due to the fact that its banking sector is adequately prepared to meet capital adequacy requirements. This verdict points to the fact that the one-size-fits-all policies are inapposite, especially that strengthened capital and reinforced supervisory agencies under Basel II have neither improved bank intermediation efficiency nor reduced corruption in lending (Beck et al., 2006).

The results of the survey piloted by this study reveal that that Basel rules are expected to set in motion three unwanted impacts. First, the ability to raise more capital will significantly impair bank profitability increasing the likelihood that stability will come at the cost of reduced lending capacity. Second, the ensuing restraint of interbank funding is apt to lead to sporadic episodes of liquidity crunches, hence increasing systemic risk. Thirdly, the contraction and/or closure of some business activities creates the possibility that customers might take their quest for market risk to the unregulated financial system.

It might be true that the representation of some EMEs on the Basel Committee has slightly tilted the bargaining positions towards emerging markets, yet it is not simply the relevance of standards to emerging countries' circumstances, but more their legitimacy that matters. Since both Egypt and Tunisia have introduced timely reforms, the costly measures required by Basel III might unwarrantedly inhibit the ability of emerging economies to deepen and develop their financial sectors. This begs the question whether shallow and less integrated financial markets require such costly regulations at the time when they are in dire need to use their resources more industriously towards providing their populous nations with better health and education. The results would suggest that both North African emerging economies should first develop the legal, information, and incentive systems in their financial sectors. This could be followed by a gradual process of incentivizing markets to move towards self-regulation.

Finally, there are several other possible effects that this paper has not considered. In the case of the inability of both nations to comply with the costly requirements, there would be a serious threat of a sovereign debt rating downgrade. In such an event borrowing costs would escalate as government bond prices slide and interest rates rise. Second, some banks are likely to go into cross-listing their securities. This does not solely pass on the higher costs to customers, but could also lead to a liquidity crunch in nascent markets, reducing the ability of other firms and sectors to raise capital. It is recommended that future research should examine the effect of these possible scenarios.

Appendix List of Acronyms

Appendix (1): List of Acronyms

ASF	Available Stable Funding
ABCP	Asset-Backed Commercial Papers
BCBS	Basel Committee on Banking Supervision
BCT	Central Bank of Tunisia
BIS	Bank for International Settlements
BRP	Bank Reform Plan (Adopted by the CBE)
CBE	Central Bank of Egypt
CCB	Capital Conservation Buffer
CCF	Credit Conversion Factor
CG	Corporate Governance
CPI	Consumer Price Index
EMEs	Emerging Market Economies
FSAP	Financial Sector Assessment Program
FSB	Financial Stability Board
GDP	Gross Domestic Product
GFC	Global Financial Crisis
G10	Group of Ten
G20	Group of Twenty
IIF	Institute of International Finance
IMF	International Monetary Fund
LCR	Liquidity Coverage Ratio
LRR	Legal Reserve Requirement
M&As	Mergers and Acquisitions
MENA	Middle East And North Africa
MMMF	Money Market Mutual Funds
NPLs	Non-Performing Loans
NSFR	Net Stable Funding Ratio
OBS	Off-Balance Sheet
OECD	Organization for Economic Cooperation and Development
OMO	Open Market Operations
O/N Interest Rate	Overnight Interest Rate
RSF	Required Stable Funding
RWA	Risk Weighted Assets
SAP	Structural Adjustment Program
SIV	Structured Investment Vehicles
SMEs	Small and Medium Enterprises
SOEs	State Owned Enterprises
SWF	Sovereign Wealth Fund
UNDP	United Nations Development Programme

Appendix (2): Classification of Emerging Market Economies (EMEs)

Advanced Emerging Markets	Secondary Emerging Markets	Frontier Emerging Markets
Brazil	Chile	Argentina
Czech Republic*	China	Bahrain
Hungary	Columbia	Bangladesh
Malaysia*	Egypt	Botswana
Mexico	India	Bulgaria
Poland	Indonesia	Côte d'Ivoire
South Africa	Morocco	Croatia
Taiwan	Pakistan	Cyprus
Turkey*	Peru	Estonia
	Philippines	Jordan
	Russia	Kenya
	Thailand	Lithuania
	UAE	Macedonia
		Malta
		Mauritius
		Nigeria
		Oman
		Qatar
		Romania
		Serbia
		Slovakia
		Slovenia
		Sri Lanka
		Tunisia
		Vietnam

∗ *Promoted from Secondary Emerging Market status as of June 2011*

Source: Assessment criteria of emerging markets can be found atwww.ftse.com/country

Appendix (3): Securitisation of Mortgage Loans

Securitisation was first introduced in the US in the seventies and witnessed mammoth growth in the nineties. It entails pooling of various types of contractual debt obligations and selling and/or transferring them to an independent ***Special Purpose Company (SPC)*** in return for an immediate cash payment. Securities backed by mortgages are known as ***Mortgage-Backed Securities (MBS)***, while those backed by other types of receivables are ***Asset-Backed Securities (ABS)***. SPCs bundle the underlying assets and issue bonds or notes to investors against them. Then, they use the proceeds to purchase the mortgage loans from the originator. The principal and interest on the debt, underlying the security, are paid back to the investors regularly. The ongoing cash flow from the mortgage loans is used to redeem the bonds/notes.

The following are the most common types of mortgage-backed securities:

- ***Pass-through MBS,*** which is essentially a securitization of the mortgage payments to the mortgage originators. These are divided into two categories:
  - Residential mortgage-backed securities (RMBS), based on residential mortgages
  - Commercial mortgage-backed securities (CMBS), based on commercial mortgages.
- ***Collateralized mortgage obligations(CMO)*** are special purpose entities that are wholly separate from the institutions that created them. CMOs are the legal owners of a set of mortgages, against which they issue bonds and sell them to investors. Mortgages are divided into tranches, each sold as a separate security.
- ***Stripped mortgage-backed securities (SMBS)*** consist of two istinct classes: interest-only (IO) securities and principal-only (PO) securities. The MBS is converted into an IO strip, where the investor receives 100 percent of the interest cash flow, and a PO strip, in which the investor receives 100 percent of the principal cash flows.
- ***Master trust structure (MTS)*** is a securitisation comprising of a substantial chunk of assets with different maturities and different transactions, whereby the SPC issues multiple bond series. The main advantage of this structure is that it is a natural solution to asset-liability mismatches and hence, avoids the cost of creating separate SPCs for each bond. This type of structure was first introduced by Citibank in 1991, but now it is most common in the UK market.
- ***Covered mortgage bonds*** (CMB)are mortgage securities where the bank keeps the mortgages on its balance sheet instead of stashing them in a trust, as they are with mortgage-backed securities. Only prime mortgages are eligible for inclusion in the pool. If some of the mortgages go bad, the bank must replace them with better ones. These are mainly common in Germany and the UK, but US regulators are seriously contemplating popularising them.
- ***Structured covered bonds*** (SCB)are mortgage securities highly similar to CMBs issued in countries lacking a covered bond law, where similar rights and risk protections are existent via the use of derivatives contracts.

Appendix (4): Definition of the Liquidity Coverage Ratio (LCR)

Stock of highly liquid Assets	Factor (%)
Cash, central bank deposits, public sector securities (0% Basel II risk weighting)	100
High-quality corporate and covered bonds, rating ≥ A-	80
High-quality corporate and covered bonds, rating AA- up to A	60
Cash Outflows Over a 30-day Stress Period	**Factor (%)**
Stable deposits (retail/SMEs)	7.5
Less stable deposits –retail/SME	15
Unsecured funding non-financial corporate (operational relationship)	25
Unsecured funding non-financial corporate (no operational relationship)	75
Other unsecured funding	100
Due highly liquid repos	0
Due other repos	100
Committed credit lines non-financials/sovereigns	10
Other committed credit lines/all liquidity facilities	100
Potential outflows from derivatives	20-100
Cash Inflows	**Factor (%)**
Receivables from retail/business credit	100
Due highly liquid reverse repos	0
Due other reverse repos	100
Other inflows (e.g., contractual payments from derivatives)	TBD

Source: Basel Committee on Banking Supervision(2010c) BaselIII: International framework for liquidity risk measurement, Standards and Monitoring, Bank for International Settlements, Basel.

Appendix (5): Definition of the Net Stable Funding Ratio (NSFR)

Available Amount of Stable Funding	Factor (%)
Capital Tier 1 and Tier 2 capital, other preferred shares and capital ≥ 1 year	100
Long-term funding Long-term debt and deposits ≥ 1 year	100
Stable deposits < 1 year Retail customers and SMEs, according to LCRdefinition	85
Less Stable deposits < 1 year Retail customers and SMEs, according to LCRdefinition	70
Wholesale Funding < 1 year Nonfinancial corporates	50
All other liabilities and other equity	0
Required Amount of Stable Funding	**Factor (%)**
Fully Liquid Cash, short-term unsecured instruments < 1 year, securities < 1 year, matched book positions, non-renewable loans to FIs < 1 year	0
Highly Liquid Debt securities ≥1 year with 0% risk weighting	5
Very Liquid Corporate/covered bonds ≥1 year rated at least AA	20
Liquid Corporate/covered bonds ≥1 year rated at least A-, equity securities, gold, non-FIloans < 1 year	50
Less Liquid Retail loans < 1 year	85
Illiquid Receivables from FI	100
Off-balance sheet positions Committed credit lines, liquidity facilities	100

Source: Basel Committee on Banking Supervision(2010c) BaselIII: International framework for liquidity risk measurement, Standards and Monitoring, Bank for International Settlements, Basel.

Appendix (6): The Model Used to Test Hypothesis (1)

Table (A6.1) details the banking sample comprising of yields information for 1588 banks across 47 emerging countries. Banking sector data are collected both from BankScope database as well the databases and releases from national banking associations. Macroeconomic data are collected from the World Development Indicators and the International Financial Statistics database. The following equation shows the dependent variable as the Z-score.

$$z'_{ij} = \alpha + \beta_1 X^1_j + \beta_2 X^2_i + \beta_3 X^3_{ij} + \varepsilon_{ij} \qquad (1)$$

The Corden method (1971) was used to calculate the effective protection rates. This requires a prior calculation of technical coefficients, based on the input-output table, and measurement of nominal protection rates (Decaluwé and Lee, 1984).

The aggregated protection rates are then calculated, for manufacturing industries, by weighting nominal protection rates per branch and per production value assessed at world prices.

The left-hand-side can be interpreted as the number of standard deviations by which GDP growth would have to fall from the mean to accommodate the contraction in credit due to the capital, liquidity and leverage requirements imposed by Basel III. The subscript *i* denotes the country; the subscript *j* denotes the bank j_i and is a random disturbance. (x^1_j) is a vector of compliance with Basel III requirements phased out over a six-year period of time. (x^2_i) is a vector of country characteristics and (x^3_{ij}) is a vector of bank characteristics. Table (A6.2) includes all the explanatory variables of interest.

Interpretation of the Results

An index of bank compliance is constructed, which measures the rate of compliance of the banking sector with the requirements of Basel III. The index ranges from 0 (non-compliant) to 4 (perfectly compliant).[39] Then the scores are added up and standardised to obtain an index that ranges from 0 to 1. This is followed by a set of control variables that capture the quality of the banking institutions. Table (A6.3) shows that cross-correlations between the different banking variables are quite low. This indicates that the principles of banking performance lead to biased results since they are independent of one another.

Regulators should not be solely concerned with the compliance of individual banks, but should equally take into consideration overall systemic risks. Hence, the following set of country characteristics are selected since they capture the macroeconomic outlook: GDP per capita growth, inflation, foreign exchange depreciation, interest rates and Fitch sovereign rating which can affect risk exposure, capital inflows and bank stability. To measure the effects on systemic soundness a few macroeconomic variables are tested, namely: the level of growth of GDP per capita, the rate of price inflation, the level of the foreign exchange rate and the sovereign credit rating. Table (A6.4) shows a high level of cross-correlations between the different country specific macroeconomic variables.

The equation is estimated by OLS with standard errors clustered by country to allow for correlated residuals within each country over the six-year period from 2000-2006: (t, t-5). The effects are simulated over a six-year period, which is the time needed to phase in Basel III requirements. The simulation is conducted by using a combination of retaining profits, reducing risk-weighted assets, and increasing equity – including common equity. The reason for selecting this specific period is to avoid external shocks imposed by the global financial crisis. The dependent variable ln(1+ Zj) avoids truncating the dependent variable at zero.

Table (A6.5) outlines two scenarios for the simulation exercise. The baseline scenario is a simulation of the anticipated results of phasing in the exact capital, liquidity and leverage specifications of Basel III. The results are segregated for each of Egypt, Tunisia and the aggregate 47 EMEs – including Egypt and Tunisia. Then, an alternative scenario

[39] Even though the EMEs that are included in the sample have somewhat divergent sizes of their economies and banking systems, none of them is too large to cause a serious bias in the results.

is presented by repeating the same exercise after excluding the leverage requirements.[40]

Results from the baseline regression reveal high Z-score for banks with more equity. Also, higher Z-scores are observed for banks operating in countries with high levels of GDP per capita growth. The coefficient of the Basel III compliance is positive. Once the leverage ratio is removed, R2 rises from 11 percent to 19 percent and the fit of the model improves.

Recovery from the Shock

In view of the burdens that both economies are expected to shoulder, it is vital to investigate the speed and mechanism of the adjustment dynamics of economic growth back to its equilibrium level. Since it is claimed that the negative impact of the shock is expected to be dampened and would start reaping a positive effect (BCBS, 2010), it is likely that GDP growth will converge to its path after the capital, liquidity and leverage costly requirements are phased in. There are two approaches commonly used to determine the speed of convergence. The first method to measure the dynamic adjustment after a crisis is the employment of leads and lags of identification dummies. The second methodology is pioneered by Melecky (2007) and assesses the speed of convergence under the assumption of linear adjustments by the Compounded Factor of Adjustment (CFA). This research follows the latter approach and the following regression is run to estimate the speed of convergence in GDP growth and its explanatory variables:

$$\Delta Y_{i,t} = \omega Y_{i,t-1} + \upsilon_{i,t} \qquad (2)$$

where,
ω: the estimated convergence coefficients
υ: a normally distributed zero-mean disturbance term

The individual convergence coefficients are compounded using the δi,t coefficients' estimates as weights. The estimation method is the iterated GLS using White heteroskedasticity consistent standard errors and covariance. The CFA is defined as per Equation (3) and the results are displayed in Table (A6.6).

$$CFA = \omega_y + \delta_{i,t}\omega_k \qquad (3)$$

All the convergence coefficients are statistically significant and CFA is equal to –1.17. This result is in accordance with the literature which indicates that the explanatory variables start adjusting after absorbing the shock, since the adoption of Basel III dampens the shock and in its own right helps macroeconomic growth to adjust and convergence back to its equilibrium path (Edwards, 2005).

The next step is to estimate the time required for GDP growth rates in the panel to adjust after the exposure to the shock of phasing in Basel III requirements.

$$AT = 1 + \frac{S}{CFA} \qquad (4)$$

Equation (4) shows that the adjustment time (AT) from the shock in percentage points (S) imposed by Basel rules is equivalent to 3.87 years for the total group of all EMEs.[41] As shown in Table (A6.6), the fastest recovery is recorded by Tunisia and the slowest by Egypt.

[40] The high capital adequacy ratio of Basel II urged many banks to expand leverage in an unchecked manner into other multi-layered opaque financial instruments. But this was prohibited by the central banks of EMEs.
[41] Using leads and lags of identification dummies is commonly used to measure the dynamic of adjustment in the wake of an economic crisis, albeit that it suffers from aggregation bias (Nath and Sarkar, 2009). Panel unit root tests and convergence rates for the log-GDP levels à la Cecchettiet al. (2002) is also frequently used.

Table (A6.1) Number of Banks in the Sample

EME	Number of Banks
Brazil	161
Czech Republic	12
Hungary	18
Malaysia	48
Mexico	46
Poland	56
South Africa	28
Taiwan	33
Turkey	17
Chile	17
China	8
Columbia	23
Egypt	39
India	42
Indonesia	67
Morocco	12
Pakistan	28
Peru	21
Philippines	22
Russian Federation	212
Thailand	28
UAE	13
Argentina	71
Bahrain	21
Bangladesh	34
Botswana	11
Bulgaria	31
Côte d'Ivoire	9
Croatia	44
Cyprus	23
Estonia	12
Jordan	5
Kenya	36
Lithuania	12
Macedonia	18
MaltaBra	11
Mauritius	16
Nigeria	72
Oman	9
Qatar	11
Romania	39
Serbia	52
Slovakia	20
Slovenia	26
Sri Lanka	11
Tunisia	31
Vietnam	12
Total	1588

Table (A6.2) Explanation and Sources of Variables and Sources

Variable	Explanation	Source
z-score	Average credit growth/GDP **PLUS** recapitalization + liquidity enhancement/GDP **DIVIDED BY** standard deviation of credit growth/GDP growth [σ (C/Y)]	- Bankscope - International Financial Statistics
Compliance by Basel III Requirements	- Capital adequacy requirement - Liquidity requirement - Leverage ratio requirement	Bankscope
BankSize	Bank size is calculated by equity	Bankscope
Liquidity ratio	LCR, NSFR	Bankscope
ROA	Return on equity	Bankscope
Loan/deposit ratio	Total loans/Total deposits	Bankscope
Loan provisions	Allowance-for-bad-debt amounts	Bankscope
GDP per capita growth	Average annual real GDP growth over the period 2004-2009	World Bank, World Development Indicators (WDI)
Price inflation	Average annual inflation over the period 2004-2009	World Bank, World Development Indicators (WDI)
Exchange rate appreciation	Average annual appreciation of the nominal exchange over the period 2004-2009	World Bank, World Development Indicators (WDI)
Sovereign rating	Moody's index of country sovereign rating	S&P RatingDirect

Table (A6.3) Cross-correlations between Banking Variables

	z-score	Size	Liquidity ratio	Listing on Stock Market	ROA	Loan/deposit ratio	Loan loss provision ratio
z-score	1						
Size	0.181 0.001	1					
Liquidity ratio	-0.001 0.621	-0.019 0.005	1				
Listing on Stock Market	0.004 0.672	0.002 0.731	0.001 0.663	1			
ROA	0.001 0.812	0.021 0.642	0.055 0.542	0.312 0.233	1		
Loan/ deposit ratio	0.211 0.000	0.002 0.000	-0.141 0.812	0.004 0.125	0.612 0.003	1	
Loan loss provision ratio	0.067 0.001	0.018 0.000	0.121 0.001	0.314 0.003	0.027 0.051	0.412 0.016	1

Table (A6.4) Cross-correlations between Country Economic Variables

	z-score	GDP per capita growth	Price Inflation	Listing on Stock Market	Exchange rate appreciation	Sovereign rating
z-score	1					
GDP per capita growth	0.267 0.000	1				
Price Inflation	0.617 0.000	0.731 0.000	1			
Exchange rate appreciation	0.571 0.001	0.428 0.000	0.632 0.001	1		
Sovereign rating	0.557 0.004	0.412 0.000	0.712 0.000	0.537 0.001	1	

Table (A6.5) Compliance with Basel III and Z-Score Results

Variable	Egypt Baseline Scenario	Tunisia Baseline Scenario	All EMEs Baseline Scenario	Egypt Alternative Scenario	Tunisia Alternative Scenario	All EMEs Alternative Scenario
Capital adequacy compliance	-0.3530* (0.302)	-0.3442* (0.289)	-0.3161** (0.352)	-0.3211** (0.282)	-0.3033** (0.273)	-0.3040*** (0.323)
Liquidity compliance	0.4123** (0.127)	0.5053** (0.201)	0.7128* (0.227)	0.4301* (0.135)	0.5112** (0.242)	0.7081* (0.233)
Leverage ratio requirement	-0.0038* (0.012)	-0.0047* (0.019)	-0.0046** (0.012)	-0.0025** (0.024)	-0.0037* (0.029)	-0.0031** (0.022)
Size by equity	1.190** (0.033)	2.633* (0.201)	3.936* (0.118)	1.019* (0.033)	2.376** (0.198)	3.936* (0.118)
Liquidity ratio	-0.05 (0.045)	-0.071* (0.025)	-0.067** (0.014)	-0.048* (0.053)	-0.069** (0.021)	-0.070* (0.027)
Listing on stock exchange	0.126** (0.208)	0.456** (0.285)	0.428* (0.206)	0.116** (0.221)	0.419 (0.277)	0.114** (0.108)
ROA	-1.117** (0.554)	-3.331* (0.561)	-3.331* (0.763)	-1.119** (0.572)	-3.331 (0. 621)	-3.592** (0.738)
Loan/deposit ratio	0.002*** (0.062)	0.001** (0.014)	0.004* (0.003)	0.001* (0.003)	0.001** (0.003)	0.009 (0.004)
Loan loss provision ratio	0.219** (0.076)	0.35** (0.071)	0.331** (0.101)	0.211* (0.065)	0.312 (0.077)	-0.156 (0.181)
GDP per capita growth	-1.0030* (2.543)	-1.0042* (1.001)	-1.0061* (1.452)	-1.0021** (2.115)	-1. 0033* (0.991)	-0.0040 (1.289)
Price inflation	0.156* (0.002)	0.321* (0.010)	0.231 (0.007)	0.134 (0.005)	0.311* (0.009)	0.005** (0.001)
Exchange rate appreciation	-0.289 (0.687)	-0.017 (0.033)	-0.165 (0.190)	-0.233** (0.605)	-0.021** (0.037)	0.00
Sovereign rating	-0.039* (0.019)	-0.089* (0.055)	-0.086 (0.041)	-0.059** (0.022)	-0.099* (0.067)	-0.078** (0.034)
Constant	2. 582** (0.627)	2.878** (0.702)	3.331*** (0.643)	2. 332** (0.598)	2.458** (0.692)	3.018*** (0.782)
R2	0.121	0.133	0.116	0.119	0.145	0.196

****, **, * denote values for p less than 0.01, 0.05 and 0.1 respectively*

Table (A6.6) CFA, the Convergence Coefficients and Adjustment Time

	Total Number of Observations	Convergence Coefficient All EMEs	Convergence Coefficient Egypt	Convergence Coefficient Tunisia
GDP growth	327	-0.7291*** [0.0211]	-0.6886*** [0.0222]	-0.7733** [0.0211]
Credit	348	-0.2171** [0.0313]	-0.1978*** [0.0456]	-0.2312** [0.0333]
Gross capital formation	352	-0.4374** [0.0323]	-0.3886** [0.04443]	-0.4743** [0.0348]
Interest rate spread	336	0.6191* [0.0393]	-0.5671*** [0.0501]	-0.6512*** [0.0451]
FX variables	312	-0.2978** [0.0312]	-0.3432** [0.0311]	-0.3145* [0.0371]
CFA		-1.1722** [0.2281]	-1.1556* [0.2022]	-1.1822** [0.2444]
Adjustment Time in years		All EMEs	Egypt	Tunisia
		3.87	3.98	3.44

Standard errors are in parentheses.
*Significance at the 10%, 5%, and 1% level is denoted by *,** and *** respectively.*

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