# **Chapter 15 Financial Sector Development Scenarios**

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## 15.1 Introduction

This chapter presents future scenarios of the financial system development in the SEMC. We first compare the region's financial systems with the European ones to determine the gaps that need to be closed in order for the SEMC to converge with the best international practices. Based on the literature on FD determinants, we make a projection of the size of bank credit to the private sector, stock market's value traded (both as % of GDP), and the efficiency of the SEMC banking sector. Our empirical sample is composed of both SEMC and EU countries over the period 1960–2009.

Our results indicate that if SEMC adopted the best EU practices, their bank credit to private sector would reach 108 % of GDP, their stock market turnover would reach 121 % of GDP and banks' meta-efficiency would be 78 %. These levels are much higher than the present ones but they are still lower than those of the best performers in Europe. More specifically, we find that improving the quality of institutions, increasing per capita GDP, further opening capital accounts and lowering inflation are necessary steps before the financial systems in the region can converge with those of Europe.

<sup>1</sup> Due to data limitations, in some cases only a subset of these countries is included.

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Section 15.2 presents a brief literature overview on FD determinants. Section 15.3 benchmarks FD in the SEMC with that achieved in Europe. Section 15.4 discusses the data, models, and scenarios. Section 15.5 concludes.

## 15.2 Determinants of Financial Sector Development

Summarizing the literature on the growth-finance nexus, Levine (2005) reaches the conclusion that both bank and stock market development contribute to economic growth. However, he notes that the determinants of FD remain scarcely investigated and imperfectly understood. In turn, Huang (2010) suggests that institutions, macroeconomics, and geography are the principal factors explaining the difference in FD between countries. He shows that protecting property rights (La Porta et al. 1997, 1998), enforcing contracts, and maintaining good accounting standards (Mayer and Sussman 2001) are the key factors contributing to financial sector success. In the same vein, Rajan and Zingales (2003) argue, based on the interest group theory, that industrial incumbents could block the development of a local financial sector under a scenario of low trade openness. They also suggest that trade liberalization without financial openness is unlikely to result in greater FD.

The empirical literature on FD investigates why some countries are more financially developed than others. Our objective is to find in these studies which factors have been the most frequent contributors to FD. We exclude legal, cultural and geographic variables, since they cannot be changed (used for forecasting) and are considered inherited. We also eliminate studies with unclear and contradictory results.

 Table 15.1 Literature on determinants of financial sector development (Authors' compilation)

Variable name	Type of variable	Number of studies	Sign
Liquid liabilities	Dependent	3	_
Liquid liabilities	Independent	2	Positive
Credit to private sector	Dependent	11	_
Credit to private sector	Independent	3	Positive
Bank deposits	Dependent	2	_
Stock market capitalization	Dependent	14	_
Value traded	Dependent	4	_
Value traded	Independent	3	Positive
GDP per capita	Independent	11	Positive
Inflation	Independent	•	
Trade openness	Independent 9		Positive
Financial openness	Independent	5	Positive
Savings rate	Independent	3	Positive
Investment rate	Independent	1	Positive
Remittances	Independent	4	Positive
Institutional quality	Independent	3	Positive
Political risk	Independent	4	Positive

Table 15.1 suggests that stock market capitalization, credit to the private sector and value traded as a % of GDP are the most frequently used dependent variables in the studies on the determinants of FD. Thus, these variables will be used in benchmarking the SEMC financial sector against Europe's.

The efficiency of the banking sector will be added to measure the quality of the banking industry. On the other hand, per capita GDP, inflation, and openness (trade and financial) are the most frequently cited determinants of FD. With less frequency, savings, investment, remittances and institutions are also found to contribute to FD. Most of these determinants will be used to project measures needed by the SEMC to reach the level of FD in the benchmarked regions.

## 15.3 Financial Sector Benchmarking in SEMC

Figure 15.1 suggests that financial sector performance in the SEMC is low by international standards, except for stock market capitalization, which increased rapidly from 30 % of GDP in 2003 to 120 % in 2009. Bank credit to the private sector grew slowly, approaching 60 % of GDP in 2009. Bank meta-efficiency stagnated at the level of 60 %, which can be considered low compared to EU standards.

Substantial reforms to converge to international best practices, privatization programs, incentives to list on the stock exchange and further opening to foreign investors have contributed to the increase of the stock market size in the region. However, its liquidity remains low at just above 40 % of GDP in 2010, despite a steep increase in 2004 and 2005.

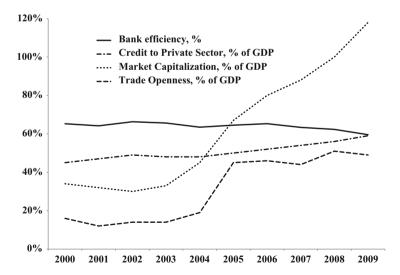


Fig. 15.1 SEMC: basic indicators related to FD (Authors' calculations based on Bankscope database and Beck et al. 2000)

Table 15.2 indicates that bank meta-efficiency in the SEMC is lower than in Europe. The largest gap is between the SEMC and Northern Europe and the lowest gap is between the SEMC and EU-MED. However, efficiency among individual countries varies greatly: Israeli banks perform better than European banks on average, and Tunisian and Morocco banks are converging to this benchmark. However, all of the other SEMC have low and declining bank efficiency.

Table 15.3 suggests that bank credit to the private sector as a % of GDP in the SEMC is growing very slowly and remains below the EU level (after being overtaken by the CEE in 2007). Almost all SEMC lag behind Europe, which calls for more action to increase the depth of the banking sector in the region. However, Morocco and Jordan seem to be catching up thanks to substantial reforms in bank regulation, creditor rights protection and financial openness.

Table 15.4 shows that, in contrast to bank development, stock market capitalization in the SEMC is higher than in all of the EU sub-regions. The stock market capitalization in the region has been catching up since 2004. However, the individual country data display a more nuanced picture, with Tunisia and Turkey lagging behind, and Morocco, Israel and Jordan performing extremely well.

Table 15.5 reports that stock market liquidity in the SEMC, measured by the value traded in % of GDP, is extremely low as compared to other regions except for CEE. The gap with EU-MED countries (average level of SEMC minus average level of EU-MED) is the highest, reaching -140 % points of GDP in 2009. Furthermore, this gap is worsening vis-à-vis all of the EU sub-regions except CEE. Looking at the individual SEMC data, stock market liquidity in every country is lower than in Europe, with the lowest gap in Israel and the highest in Tunisia and Turkey.

# 15.4 Financial Sector Development Scenarios

#### 15.4.1 Data

Table 15.6 presents statistical sources and Table 15.7 presents country and time coverage. For banking development, the dataset includes all SEMC except Libya and Palestine. For the capital market development, the dataset covers the same countries except Algeria and Syria.

#### 15.4.2 Model

To determine FD variables for the future scenarios, we will look at the FD gaps calculated as the differences between the SEMC and EU averages of indicators presented in Tables 15.2, 15.3, 15.4, and 15.5. The EU sub-regions appear to be a good benchmark for banking sector development and the liquidity of the stock

Table 15.2 Meta-efficiency of SEMC vs. the EU, % (Authors' estimation based on Beck et al. 2000)

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Year	EU-North	CEE	EU-MED	SEMC	Algeria	Egypt	Israel	Jordan	Lebanon	Могоссо	Tunisia
2000	85	78	72	65	43	71	58	92	78	62	71
2001	06	78	71	64	46		47		77	63	70
	06	81	70	99	61		56	99	74	61	71
		83	70	99	57		73	56	69	09	72
2004	83	84	71	63		89	77		89		75
		84	73	65					63	99	75
		84	73	65	47			99			78
		85	70	63				99			75
		83	62	62	34		81	61	99		71
2009	83	84	19	09	29	46	81	58	58		69

Table 15.3 Credit to private sector, % of GDP: SEMC vs. Europe (Authors' estimation based on Bankscope and Beck et al. 2000)

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Year	EU-North	CEE	EU-MED	SEMC	Algeria	Egypt	Israel	Jordan	Morocco	Tunisia	Turkey
2000	92	30	94	50	5	50	73	70	49	53	14
2001	103	31	100	53	7	52	81	72	47	57	14
2002	104	31	104	55	10	53	88	72	48	09	13
2003	107	33	105	54	11	52	88	69	47	58	13
2004	110	37	107	53	10	51	84	69	48	58	14
2005	117	42	111	55	10	50	85	77	50	09	18
2006	124	49	119	57	11	47	87	84	53	59	22
2007	133	56	129	58	12	4	87	68	61	58	26
2008	142	65	140	09	13	41	87	94	70	57	31
2009	154	92	153	63	13	38	87	101	83	56	37

**Table 15.4** Stock market capitalization. % of GDP: SEMC vs. Europe (Authors' estimation based on Bankscope and Beck et al. 2000)

Table 15.	able 15.4 Stock market	capitalizat	capitalization, % of GDF: SEWIC vs. Europe (Authors, estimation based on Bairkscope and Beck et al. 2000)	SEIMIC VS. EL	nrope (Autin	ors estimative	on based on	bankscope and	Deck et al. 200	(00)	
Year	EU-North	CEE	EU-MED	SEMC	Egypt	Israel	Jordan	Lebanon	Morocco	Tunisia	Turkey
2000	110	17	77	34	31	53	64	10	33	14	34
2001	93	14	64	33	27	57	63	8	27	13	30
2002	29	13	50	32	29	53	70	7	22	11	18
2003	59	15	44	35	32	53	68	7	22	6	17
2004	59	19	49	49	42	70	129	6	34	6	21
2005	73	22	55	74	99	83	223	17	45	10	27
2006	84	25	29	88	81	104	242	29	59	12	31
2007	88	29	82	26	91	127	225	40	98	14	34
2008	93	34	98	111	102	158	209	55	124	17	38
2009	100	44	66	131	114	198	193	78	184	20	42

Table 15.5 Value traded, % of GDP: SEMC vs. Europe (Authors' estimation based on Beck et al. 2000)

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Year	EU-North	CEE	EU-MED	SEMC	Egypt	Israel	Jordan	Lebanon	Morocco	Tunisia	Turkey
2000	54	8	77	7	11	19	5	1	3	3	29
2001	89	4	50	7	4	25	10	0	3	2	40
2002	82	4	42	12	3	51	14	1	1	1	30
2003	63	S	35	11	4		26	1	1	1	33
2004	92	7	39	16	7	38	47	1	3	1	38
2005	91	13	46	46	28		189	4	7	2	42
2006	87	11	63	47			142	6	21	2	43
2007	125	15	26	4	41		110	4	36	2	46
	122	23	136	51	39	80	83			2	50
	148	30	185	48	37	06	63			2	54

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Variable	Source	N	Mean	dev.	Min	Max
Credit to private sector (% GDP)	Beck et al. (2000)	1,240	54.53	37.71	3.57	243.64
Bank efficiency (in %)	Bankscope	438	68.92	11.03	29.31	92.41
Value traded (% GDP)	Beck et al. (2000)	652	33.98	58.88	0.00	518.82
Log real GDP per capita (USD)	WDI	1,519	8.61	1.18	6.07	11.68
Trade openness (% GDP)	WDI	1,517	78.74	43.92	0.00	319.55
Financial openness	Chinn-Ito (2008)	1,212	0.42	1.65	-1.84	2.48
Inflation (% growth in deflator)	WDI	1,442	12.14	41.59	-32	1,058
Savings rate (% GDP)	WDI	1,419	20.48	11.03	-64.14	67.81
Institution quality	PRS	862	5.95	1.13	0.78	8.09

**Table 15.6** Descriptive statistics (From the Bankscope database and WB WDI)

market but not for stock market size (SEMC outperform them). This result is mainly driven by the listing of the large financial institutions on the stock market in the SEMC. For scenario building purposes, we will exclude them from the stock market capitalization. For stock market liquidity, Northern EU and EURO-MED are considered to be good benchmarks for the SEMC. Overall, our scenarios will include credit to the private sector, stock market turnover and bank meta-efficiency indicators.

For each financial sector, we will estimate an equation including explanatory variables we spotted in Table 15.1. The model for assessing the determinants of FD is as follows:

$$FD_{i,t} = \beta_0 + \beta_1 Inflation_{i,t} + \beta_2 Savings Rate_{i,t} + \beta_3 Trade Openness_{i,t} + \beta_4 Financial Openness_{i,t} + \beta_5 Log real GDP per capita_{i,t} + \beta_6 Institution Quality_{i,t} + \varepsilon_{i,t}$$

$$(15.1)$$

where FD includes the FD variables (bank credit to the private sector in % of GDP, meta-efficiency (see Chap. 12), and stock market value traded in % of GDP). Explanatory variables include: inflation measured in terms of GDP deflator, national saving as a % of GDP, trade openness as the sum of exports and imports in % of GDP, financial openness as the Chinn and Ito (2008) financial liberalization index, Log real GDP per capita, and the index of institutional quality measured as the average of four ICRG indicators, published by the PRS Group (bureaucratic quality, control of corruption, index of democratization and law and order – see http://www.prsgroup.com/ICRG\_Methodology.aspx). The estimations are based on OLS regressions.

For the next step, we use the coefficient for each explanatory variable derived from the above estimations and multiply it by the level of benchmark value to R. Ayadi et al.

**Table 15.7** Sample composition (Authors' compilation)

Region	Countries	Observation period
SEMC	Algeria	1975–2009
	Egypt	1960–2009
	Israel	1975–2009
	Lebanon	1977–2009
	Morocco	1960–2009
	Syria	1960–2009
	Tunisia	1988–2009
	Turkey	1981–2009
CEE	Bulgaria	1992–2009
	Czech Republic	1994–2009
	Estonia	1993–2009
	Hungary	1983–2009
	Latvia	1994–2009
	Poland	1981–2009
	Slovakia	1994–2009
Northern EU	Slovenia	1992–2009
	Austria	1960–2009
	Belgium	1960–2009
	Denmark	1960–2009
	Finland	1961–2009
	Germany	1960–2009
	Ireland	1960–2009
	Netherland	1960–2009
	Sweden	1960–2009
	UK	1960–2009
EURO-MED	Cyprus	1992–2009
	France	1960–2009
	Greece	1960–2009
	Italy	1964–2009
	Malta	1961–2009
	Portugal	1969–2009
	Spain	1973–2009

project the potential level of FD if the country adopts the best international practices. We also use the best convergence scenario in which SEMC indices will be replaced by the benchmark values only if this contributes to FD. We use the average of the last 3 years to avoid cyclical effects.

#### 15.4.3 Scenarios

The results obtained from the regression on bank credit to the private sector (Table 15.8) show that lower inflation contributes to higher credit to the private

Regressions	(1)	(2)	(3)	
Variables	Credit to private sector	Bank efficiency	Value traded	
Inflation	-0.0263*	-0.00664**	0.374**	
	(0.0133)	(0.00183)	(0.102)	
Savings rate	-0.868**	-0.325**	-0.803*	
	(0.113)	(0.0659)	(0.318)	
Trade openness	0.114**	0.0341**	-0.106	
	(0.0311)	(0.0130)	(0.0604)	
Financial openness	2.582**	-0.854	7.398**	
	(0.993)	(0.439)	(1.218)	
Log real GDP per capita	14.58**	1.782*	10.03**	
	(1.416)	(0.815)	(2.439)	
Institutional quality	9.664**	3.269**	18.82**	
	(1.522)	(1.026)	(3.494)	
Constant	-119.7**	36.78**	-160.6**	
	(12.67)	(5.476)	(27.63)	
Observations	684	390	576	
Adj. R2	0.435	0.123	0.218	
F	98.85	19.33	23.04	
P	0	0	0	

Table 15.8 The determinants of FD in Europe and SEMC

Note: \* and \*\* stand for significance at 5 %, and 1 %, respectively

sector by reducing the uncertainties related to the investment decision. Besides, better institutions and a higher per capita GDP help increase the depth of the financial system. Increasing trade and financial openness are also key drivers for higher bank credit to the private sector. However, a higher level of saving is detrimental to private credit since the availability of saving reduces the demand for bank financing.

The regression on meta-efficiency in Table 15.8 indicates that trade openness, the protection of creditor and investor rights, a well-functioning legal system, and a stable government (quality of institutions) are key contributors to bank efficiency as well as lower inflation and higher GDP per capita.

The regression on stock market value traded shows that more financial openness through removing capital account restrictions can improve the liquidity of the stock market. High-quality institutions are fundamental for improving trading in the stock exchange. Inflation also seems to be beneficial since stocks are good investment vehicles to protect against inflation.

Table 15.9 shows that bank credit to the private sector is expected to reach 108 % of GDP if the SEMC adopt the same best practices as the North-EU benchmark region and 73.70 % if CEE practices are used as the benchmark. This would be much higher than 2009 levels but still lower than the average EU level in the same period, which was 87 %. A level of bank credit to the private sector to GDP of 108 % can be reached by the SEMC if they increase their level of saving and the

			NORTH-	EURO-	
Scenario	SEMCs	EU	EU	MED	CEE
Convergence to benchmark	59.26	86.99	101.89	85.38	73.70
Convergence to benchmark (best factors)	59.26	88.30	108.06	85.26	74.44

**Table 15.9** Bank credit to private sector, % of GDP, 2009, convergence scenarios (Authors' estimation)

**Table 15.10** Bank credit to private sector, best factors by region (Authors' estimation)

Variable	EU	NORTH-EU	EURO-MED	CEE
Inflation	Yes	Yes	Yes	Yes
Savings rate	No	No	Yes	No
Trade openness	Yes	Yes	Yes	Yes
Financial openness	Yes	Yes	Yes	Yes
Log real GDP per capita	Yes	Yes	Yes	Yes
Institutional quality	Yes	Yes	Yes	Yes

Table 15.11 Bank meta-efficiency, %, 2009, convergence scenarios (Authors' estimation)

Scenario	SEMCs 2009	EU	NORTH- EU	EURO- MED	CEE
Convergence to benchmark	59.6	70.6	72.6	70.8	68.4
Convergence to benchmark (best factors)	59.6	73.0	77.1	72.7	70.3

quality of their institutions (better investor protection, less corruption and less bureaucracy), increase their GDP per capita, and reduce inflation rates. Looking at each variable that needs to be improved, we find that increasing wealth is a key contributor for developing the size of the banking sector, followed by better institutions and a more open capital account (making sure that banking regulations are efficient) (Table 15.10).

Table 15.11 shows that bank efficiency would reach 77 % in the SEMC if they adopted the best practices of the Northern EU and 68 % if the CEE is used as the benchmark. All the scenarios are higher than the 2009 SEMC meta-efficiency level (59 %) but lower than the 83 % of the Northern EU. A possible conclusion is that improving bank efficiency is a more complex process than simply increasing credit to the private sector. Besides, the lower R2 of the efficiency regression as compared to that of credit to the private sector means that additional determinants of bank efficiency are not captured by the model. However, improvement in the quality of institutions, higher income per capita, more trade openness and lower inflation are key ingredients in reinforcing efficiency in the SEMC. Comparing the variables to be improved, we find that the quality of institutions and wealth are by far the most important factors for enhancing banking efficiency (Table 15.12).

Variable	EU	NORTH-EU	EURO-MED	CEE
Inflation	Yes	Yes	Yes	No
Savings rate	No	No	Yes	No
Trade openness	Yes	Yes	Yes	Yes
Financial openness	No	No	No	No
Log real GDP per capita	Yes	Yes	Yes	Yes
Institutional quality	Yes	Yes	Yes	Yes

Table 15.12 Bank meta-efficiency, best factor by region (Authors' estimation)

**Table 15.13** Stock market value traded, % of GDP, 2009, convergence scenarios (Authors' estimation)

			NORTH-	EURO-	
Scenarios	SEMC	EU	EU	MED	CEE
Convergence to benchmark	49.22 %	51.9 %	66.7 %	57.5 %	31.3 %
Convergence to benchmark (best	49.22 %	58.3 %	80.1 %	59.5 %	38.0 %
factors)					

Table 15.14 Stock market value traded, best factors by region (Authors' estimation)

Variable	EU	NORTH-EU	EURO-MED	CEE
Inflation	No	No	No	No
Savings rate	No	No	Yes	No
Trade openness	No	No	Yes	Yes
Financial openness	Yes	Yes	Yes	Yes
Log real GDP per capita	Yes	Yes	Yes	Yes
Institutional quality	Yes	Yes	Yes	Yes

Table 15.13 shows that stock market turnover would reach 80 % of GDP if the SEMC adopted the best practices of the Northern EU but only 38 % of GDP if they adopted the best practices of the CEE. This level of stock market liquidity would be much higher than the 2009 SEMC level but lower than the EU average of 58 %.

The SEMC cannot reach the level of stock market liquidity of the EU countries because of other factors that are not captured by the model and are not measurable. However, our model has spotted the variables that can significantly contribute to improving liquidity such as higher GDP per capita and open capital accounts (Table 15.14).

# 15.4.4 Policies of Convergence

We will now analyze how much the determinants of FD would improve if we were to take the EU as the benchmark (Table 15.15). Inflation would be reduced by 3.5 %

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Variable	EU	NORTH-EU	EURO-MED	CEE
Inflation	3.52	4.72	4.17	1.67
Savings rate	-1.51	-7.18	3.77	-1.13
Trade openness	-33.67	-51.71	-3.05	-46.25
Financial openness	-2.15	-2.34	-2.25	-1.85
Log real GDP per capita	-21,783	-45,334	-11,891	-8,123
Institutional quality	-1.24	-1.85	-1.26	-0.61
Bureaucratic index	-1.19	-1.98	-1.05	-0.53
Investor protection index	-2.96	-3.32	-3.14	-2.42
Rule of law index	-0.59	-1.45	-0.46	0.13
Democratic index	-2.29	-2.41	-2.40	-2.06
Corruption index	-1.50	-2.76	-1.36	-0.38

Table 15.15 Gap in determinants: SEMC vs. Europe (Authors' own calculation)

points and income per capita would increase by USD 22,000. Capital account openness needs to be improved by 2.5 points using the Chinn and Ito (2008) index. Institutional quality should also be improved quite substantially. In particular, investor protection needs to be strengthened by at least three notches in the IRCG rate scale (1–5), the democracy index by two grades, corruption by one and half grades, the bureaucracy index by one grade and the rule of law by half a grade.

More broadly, referring to the World Bank (2011) study on financial sector development in the SEMC, we recommend strengthening the financial infrastructure through an upgrade of the credit information system, the collateral regime and the insolvency regime. These reforms should provide better protection for lenders and investors and contribute to banking and stock market development. Besides, developing the money market, improving the liquidity of the government bond market, developing the investor base, and opening the stock market to foreign investors should improve its liquidity. Finally, reinforcing competition in the banking sector through privatization, foreign entry, and regulation limiting loan concentration should push for more efficient banks.

#### 15.5 Conclusions

In this chapter the future scenarios of the financial sector in the SEMC have been developed. As a first step, we reviewed the literature on financial sector determinants to find out which factors can explain why some countries' financial systems are more developed than others. Then we compared levels of FD in the SEMC with the EU and found that the former lag behind the latter in terms of the depth and efficiency of their banking sectors and stock market liquidity, but they are in a better position if we measure their stock market capitalization.

On this basis, we developed a model that we tested on a large sample of SEMC and EU countries to explain three variables of FD: bank credit to the private sector

as a share of GDP, bank efficiency, and stock market liquidity. The estimation of this model provided us with coefficients for each variable, which were used to determine scenarios of FD by interacting them with the average levels reached by the benchmark regions during the last 3 years of statistical observation.

The results show that if the SEMC reach the EU benchmark levels of FD determinants, bank credit to the private sector will reach 108 % of GDP, stock market turnover will reach 121 % of GDP and bank meta-efficiency will reach 78 %. We also find that improving institutions, achieving higher per capita income, further opening their capital accounts, and lowering inflation are four key factors that will help the SEMC financial systems converge with European ones.

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