

Notes

2 Overview of the Turkish Economy

1. Current account deficit was 8 per cent of GNP and 92 per cent of foreign currency income in 1977.
2. Real interest rate on domestic debt almost doubled between 1994 and 1999.
3. Turkey is still among the most dollarized economies and, despite significantly improved inflation expectations, attempts at reversing this currency substitution have been limited.

3 Trends in the Banking Industry

1. Akgüç (1989) suggests examining the historical evolution of Turkish banking in six periods. In this chapter we add an additional period representing the era after the 2001 financial crises and the reformation of the banking sector.
2. The bank served as a central bank until 1930.
3. The Law on the Central Bank of the Republic of Turkey was enacted on 11 June 1930. The Bank was established on 3 October 1931 and opened officially on 1 January 1932. The Bank had, originally, the privilege of issuing banknotes for a period of thirty years. In 1955, this privilege was extended to 1999, and in 1994 was prolonged indefinitely.
4. TYT Bank, Marmara Bank and Impex Bank.
5. These banks were Egebank, Esbank, Türkiye Tütüncüler Bankası – Yaşarbank, Sümerbank and Yurtbank.
6. These banks were Demirbank, Interbank and Bank Express.
7. These banks were Ulusal Bank, İktisat Bankası, EGS Bank, Bayındırbank, Kentbank, Tarışbank, Sitebank and Toprakbank.
8. The first legal arrangement relating to the protection of savings deposits was established in 1933. The law stated that the deposits kept in reserve requirement accounts in the Central Bank by banks are accepted as a provision of savings deposit accounts opened by the public, and these reserves are exempted from seizure by third parties. Subsequently, in 1936, 40 per cent of all deposits on banks balance sheets were granted a privileged claim status over all other securities in banks' books. The requirement implied that, in case of bankruptcy, deposits were to be paid regardless of the liquidation process. This ratio was increased to 50 per cent in 1958, and in 1960 a Banks Liquidation Fund was established.
9. Although dollarization has generally been high in terms of deposits, the two observed peaks in 1994 and 2001 are also the result of sharp and large devaluations of the Turkish lira during the crisis periods.

5 The Turkish Banking Sector and Regional Economic Growth

1. A very important variable that is commonly added in empirical studies (Levine, 1997), but could not be included in the present analysis because of data

limitations, is human capital accumulation – often measured by level of educational attainment among the population. Growth theory suggests a positive relationship between education and economic growth.

6 Performance of Banks in Turkey

1. Different types of production function have been applied by Forsund and Hjalmarson (1979) and Kumbhakar *et al.* (1991). On the other hand, the distance function context is used by Lovell *et al.* (1994), Coelli and Perelman (1996), Grosskopf *et al.* (1997) and Morrison-Paul *et al.* (2000), whereas the production function model is used by Greene (1980) and others (Morrison-Paul, 1999).
2. See Charnes *et al.* (1978) for more details.
3. See Lovell (1993).
4. According to Lovell (2003), productivity, which in turn affects efficiency, varies as a result of changing production technology, efficiency and environmental factors where the production process is taking place.
5. Sherman and Gold (1985), Ferrier and Lovell (1990), Berg *et al.* (1993) and Brockett *et al.* (1997) are the best-known to have studied this approach.
6. DEA compares inefficient units with a convex combination of units located on the frontier and indicates the sources and the level of inefficiency for each of its inputs and outputs. The indicated targets, which are shown to the inefficient units as models, are their actual peer units.
7. This is known as the CCR model of efficiency.
8. A mathematical programming model was applied to observe data that provides a way for the construction of production frontiers.
9. See Murillo (2004).
10. The same argument has been presented in Ray and Desli (1997), that the CRS assumption of Färe *et al.* (1994) on Malmquist index measurements might create misleading results. Thus, VRS might be a more realistic assumption.
11. The decision of the estimation whether to omit slacks or not provides the assumption of strong or weak disposability in the DEA estimation.
12. Färe *et al.* (1994) provide a guide to the nonparametric approach.
13. The model is called Tobit because it was first proposed by Tobin (1958), and involves aspects of Probit analysis.
14. It has been emphasized by Malmquist (1953) that ‘no treatment of productivity change aspects would be complete without reference to work by Diewert (1976, 1978, 1981), Caves, Christensen and Diewert (1982a and 1982b), Färe, Grosskopf and Lovell (1985, 1994), Färe and Primont (1995), and Balk (1997) (Battese *et al.*, 1998: 100).
15. Although distance functions were developed by Shephard (1953, 1970), it was only recently that applications involving distance functions have appeared (Färe *et al.*, 1993; Lovell *et al.*, 1994; Grosskopf *et al.*, 1997). The principal advantage of the distance function representation is that it allows for the possibility to specify a multiple-input/multiple-output technology when price information is not available or, alternatively, when price information is available but cost, profit or revenue representations are prohibited because of the required behavioural assumptions (Färe and Primont, 1995).

16. For details on the interpretation and estimation of both versions of Malmquist Productivity Index, see Berg *et al.* (1992), Grosskopf (1993) and Bjurek (1994).
17. See, for example, Grifell-Tatje and Lovell (1996).
18. For details on both versions of the model, see Berg *et al.* (1992), Grosskopf (1993) and Bjurek (1994).
19. Hicks-neutral is an attribute of an effective variable in a production function in such a way that it does not affect one of the inputs differently from the way it affects another.
20. Caves *et al.* (1982) showed that if period t technology is characterized by a Translog output distance function and if period $t + 1$ technology is identified by a different Translog output distance function having the same second order parameters, and if the procedure maximizes profit in both periods, then the Malmquist productivity index is a Tornqvist productivity index. However, this would not consider the scale factor.
21. Later, this approach was measured by a nonparametric linear programming technique by Färe *et al.* (1989) developing Malmquist into an applied index instead of a theoretical index, and then expanding it to treat scale economies of either CRS or VRS.
22. See Lovell (2003) for detailed explanations.
23. Technical change and catching up components were introduced by Färe *et al.* (1992).

7 Other Financial Markets in Turkey

1. Decree-Law No. 91, concerning securities exchanges, is published in the Official Gazette No. 18183, dated 6 October 1983. The Decree foresaw the establishment of a stock exchange in Turkey for the purpose of creating a medium for securities operations, with the objective of making Turkey's capital markets more efficient. The regulations outlining the functions and operations of a stock exchange in Turkey were published in the Official Gazette No. 18537, dated 6 October 1984. The Regulations outline the nature and functions of members and their responsibilities, as well as other aspects of trading on the ISE.

8 Current Developments and Prospects for Turkish Banks

1. These are QIS 2, QIS 3, QIS 4 and QIS. Please see BIS website (<http://www.bis.org/bcb/qis/>) for more information.

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