Financial Liberalization, Stock Markets and Growth in Economies with Underdeveloped Financial Markets

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Abstract

In the 1990s numerous developed as well as underdeveloped economies suffered from banking crises after following the advice of financial market liberalization theory and liberalized the banking sector as well as the stock exchange. Despite of these evidences theoretical arguments of financial liberalization theorists are still undoubted and proposals for restructuring international financial markets to increase stability, act in the tradition of financial market liberalization. Aiming to analyse the causalities of financial market liberalization theory for developments on national stock exchanges and the impacts for economic growth this paper discusses the evolution of the Athens Stock Exchange as best case scenario.

Keywords: *economic development, stock exchanges, wealth ef-*
        fects, consumption

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1. Introduction

In the last decade many articles (among others Levine and King 1993a, Levine and King 1993b, Levine and Zervos 1998, Levine 1997, Pagano 1993, Singh 1997) have analyzed the link between financial market development and growth effects in less developed countries using models of endogenous growth theory. As a result contributors asked for financial market liberalization to boost economic development. But neither these studies nor the basic theoretical background of financial market liberalization of McKinnon and Shaw (both 1973) provide us with an analysis of economic development arising from wealth effects as result of changes in asset prices. A second aspect that has hardly ever been touched is the role of the stock exchange in the liberalization process (see as an exception Atje and Jovanovic 1993).

This paper therefore tries to combine these two neglected aspects and analyses wealth effects arising from changes in asset prices in national stock exchanges under the assumption of consumption changes due to wealth effects. Developments are implemented into an macroeconomic setting, which lead to the analysis of possible growth effects – changes in GNP – as a result of financial market liberalization, focusing on the national stock exchange. Greece will serve as a case study, since it suffered from a less developed financial market during the period of banking sector and capital market liberalization. Banking regulation was heavy centralized and included severe qualitative and quantitative restrictions till the early 90s. Starting from the mid 1980s the banking sector as well as the stock exchange has gradually been liberalized. First deregulations concentrated in reducing the control of the state, later on, in the mid 90s the basic aim was to implement the guidelines of the European Union. Therefore the period observed, covers the mid 80s till the end of the century. To discuss the outcomes critically, results are compared with evidences from Italy and Spain, economies with similar macroeconomic developments.

As it regards the methodical approach, this paper follows the argumentation of financial liberalization theorists in the 70s, which used a partial comparative statistical analysis to show the interdependence of specific variables. Although the author is aware of the fact,

that important external influences cannot be analyzed that way, this methodical approach seems to be the best alternative given the incapability of econometric approaches, as discussed below, to show any valuable results when analysing the wealth and asset price effects. Additionally a close connection to the argumentation of financial liberalization theorists is given, when choosing this methodical approach.

The paper will proceed as follows: Section two will show the argumentation of financial liberalization and the critiques on the theoretical arguments as a starting point; furthermore Greece will be presented as a critical case study. Theoretical arguments for the linkage between developments of the stock exchange and the following changes in asset prices as well as the interrelation of increasing economic development (GNP development) and changes of asset prices are discussed in section three. Section four shows the empirical evidence for Greece by analyzing developments on the Athens Stock Exchange (ASE).

2. Starting Point: The Story of Financial Liberalization and Greece as Case Study

The regulation of the financial markets, which implies among other measures: interest ceilings, high reserve ratios and implicit credit programs, leads to lower investment ratios and has furthermore a negative impact on growth, according to financial liberalization theorists. The roots of a clear formulated liberalization theory for financial markets traces back to the works of McKinnon (1973) and Shaw (1973), which aimed to explain persisting growth disparities between countries. The crucial factor for the poor performance of less developed countries or *'fragmented economies'*, as McKinnon calls those countries due to their special structure of economic interdependence of firms, households and the state, was found in the role of the state on domestic financial markets. Especially methods like interest ceilings and the administratively guided allocation of loans in certain industrial areas, seem to cause *'financial repression'* which leads to qualitative and quantitative distortions in investment; further on these distortions cause economic inefficiencies and repress economic development in less developed countries.

Banks are not able to compensate higher-risk-projects with higher interest rates, in case of interest rate ceilings; hence only projects with low risk are financed - a qualitative repression. Additionally the savings potential cannot fully be acquired. This reduces the potential investment volume and leads therefore to quantitative distortions.

For the theoretical foundation of the argumentation of financial liberalization theorists McKinnon reformulates the neoclassical money theory and identifies a *complementarity* between money and physical capital in fragmented economies. Since a firm is restricted to self-finance in a fragmented economy McKinnon states that higher real cash balances of the firm will also lead to higher investments. The economic performance of two firms is caused by different strategies in holding money (liquidity), under the assumption that investment relies totally on internal financing. A firm that increases the cash balance in the present can increase investments in the next period, which promotes growth from a microeconomic perspective. Higher consumption (spending) in the current period of another firm, lead to lower real cash balances in comparison to the first firm and to lower net-investments in the following periods.

How financial liberalization promotes growth in financially under-developed economies

The increase of the real money demand function serves as the crucial factor for economic development according to McKinnon and Shaw. The following question emerges: How are the increasing real money demand function and economic growth interrelated? Statistical data for Germany and Japan show such a connection in the post war period ex post for, in financial terms, developed economies (McKinnon, 1973:91ff). Similarly, ex post statistical data seems to prove that relationship for underdeveloped economies.

Assuming a fixed income level, an efficient absorption and allocation of savings and investments in the banking sector, as well as the assumption that the government is not using seigniorage effects to finance public deficits, graph 1 shows an optimum supply of money and banking intermediation and the optimum level of administration costs of banks and returns of new investments. The vertical axis shows the real cash balances (M/P) and the rate of returns. The

curve CD stands for the real rate of return of cash balances (d-P). The line AB shows the increasing and in the following decreasing marginal rate of returns of investments.

Graph 1 Optimum supply of money at a fixed income-level
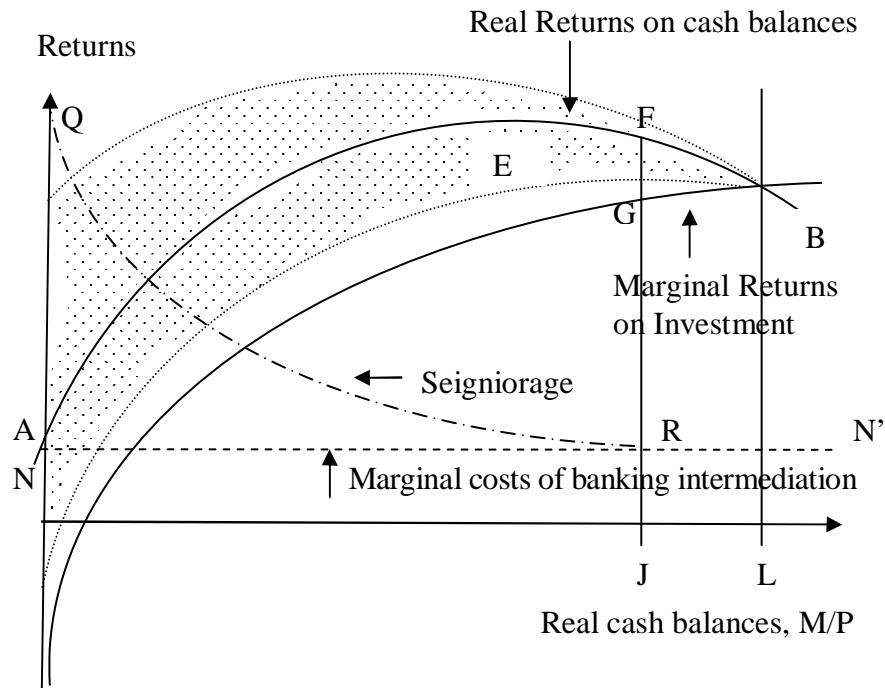
Source: McKinnon, 1973: 120

At the level AE is the average marginal return of investments increasing. The indivisibility of investments is set off, according to McKinnon (1973: 121), during the rise of financial systems, when the real returns are raising (up to a certain level of new capital accumulation). Therefore, the dotted area, which surrounds the AB line, shows decreasing differences between real returns on investment projects; these differences characterize an underdeveloped fragmented economy. Increasing banking efficiency is demonstrated by the line NN' – the marginal costs of banking intermediation – and the downward sloping QR line, which symbolizes the seigniorage effects. In the course of development, the banking sec-

tor's marginal costs remain constant, since innovation of new banking products hamper the decrease of marginal costs of banking products. The optimum is shown in point J in graph 1. Real returns on cash balances including the marginal costs of banking intermediation equal the marginal returns on investment in this point, since JR equals GF. Although an enlargement of the banking sector beyond this point would further decrease differences in revenues – till point L is reached – but the costs of the banking sector are not favorable. To find an answer to the question whether financial liberalization could promote economic growth and employment, the theoretical argumentation of McKinnon and Shaw has to be implemented into causal chains, which are empirically testable. Financial liberalization theorists concentrate on partial analysis which enable detailed ex post analysis of the potential causal arguments for the interrelation between *financial liberalization and economic growth.* Three steps have to be clarified: First the interrelation between interest rates and savings has to be settled. Secondly the positive relationship between investment-level and the possibility of taking loans has to be clarified. Thirdly improvements in the efficiencies of investments are supposed to increase the quality of investment-project (in terms of comparing the level of risk and potential return). These improvement can be achieved with a rise in efficiency, so that not only quantitative but also qualitative distortions can be offset.

Several empirically studies (Fry, 1988, 1978; Voridis, 1993; Dutta and Polemarchakis, 1988) seem to prove these interrelations. Apart from partial analyses, Gupta and Lensink (1996) also unite the three aspects described above in a single model, which consist of three sectors – the private sector, the banking sector and the public sector. According to this model a positive relationship between financial liberalization and economic growth cannot be found, the results not determined.

Empirical evidence and 'new' liberalization theorists

In the 80s and 90s empirical evidence has shown a different scenario than the proposed argumentation of McKinnon and Shaw. Many economies, which have followed the advice of liberalization theorists and have deregulated their financial markets, faced heavy

financial crises followed by a breakdown of growth rates, raising inflation and increasing unemployment rates. Often mentioned examples in this respect are the banking crises of Japan, Argentina and Mexico in the 90s. Also many European countries faced increasing banking instability in this period, although the economic costs of financial instability have been much lower than in emerging markets (Demirgüc-Kunt and Detragiache 1998a). Owing to those effects, economists - especially Post-Keynesian economists like Arestis and Demetriades (1999), Wolfson (1993), have been heavily criticizing the basic assumptions of perfect competition and perfect information among market participants as well as the institutional-free analyses of liberalization theory in the 70s. They come to the conclusion that the liberalization process has negative impacts on output and economic growth and promotes financial instability.

As a reaction to these critiques 'new' liberalization theorists tried to incorporate a new set of preconditions, which must be fulfilled to enable financial market liberalization can be successful. Apart from a stable macroeconomic situation, that includes low inflation, no economic recession and fiscal stability, this framework incorporates as well institutional indicators (Hutchison 1999, Demirgüc-Kunt and Detragiache 1998b, 1999). These institutional indicators cover advice in handling deposit insurance systems in the banking sector as well as proposal for the position of the national central banks. Conversely to what have might been assumed, new liberalization theory did not fundamentally alter the argumentation of McKinnon and Shaw but added minimum criteria of macroeconomic stability and strict solutions for weak institutional intervention on financial markets. Therefore, it can be concluded that according to new liberalization theorists financial fragility will only occur, if monetary authorities do not follow properly the advice given. (Fry, 1978, 1988, 1997)

Given this background of financial liberalization theory Greece will serve as case study for the *best potential scenario* in this paper. The reasons for choosing Greece as case study can be split up into three lines of argumentation:

(1) First, the Greek financial market is regarded as a less developed market and although economists often state that industrialized

economies cannot be regarded as emerging markets the Greek financial market before the Liberalization of the 80s fulfils the criteria of emerging markets mentioned by Posner and Coleman (1998). According to Posner and Coleman (1998: 5f) an emerging financial market can be classified using four indicators. First, gross national product per head is far below of the average of an developed economy. As a reference the definition of Stanley Morgan Capital International is given, which computes an average of 3,100$ GNP per head in an emerging market compared to an average of 20,535$ GNP per head in a developed economy. Secondly, restrictions for foreign investors and restrictions in capital mobility apply in these economies. The third indicator covers the risk situation of the economy, which is higher in an emerging market due to higher instability in political and macroeconomic terms. The forth indicators marks the annual growth rate of the economy, which are supposed to be higher in emerging markets compared to developed economies.

Since financial liberalization theory deals with less developed countries and *emerging markets,* the arguments of liberalization theorists should apply for Greece.

(2) Second, discussing the methods of banking regulation, that were introduced by the Greek monetary authority it cannot be neglected, that all measures, that should, according to McKinnon and Shaw, cause 'financial repression' were also implemented on the Greek banking sector. As mentioned above, the main argument for financial liberalization theorists against banking regulation were interest rate ceilings. Additionally credit allocation systems are supposed to hamper financial development by allocating loans in inefficient industries or branches of the economy.

The Greek banking regulation system was established in the 50s to stabilize the economy after seven years of civil war. The measures concentrated mainly on three areas. Administratively fixed interest rates, a loan allocation system and additional restrictions to special banking institutions, like investment banks or the agricultural bank (Mannasakis 1986, Hein, Katsioupis and Thiess 1984). The loan allocation system covered three measures: Banks had to undertake *compulsory investments* in interest bearing treasury bills, *compulsory deposits* at the central bank, which exceeded normal reserve

rates at the central bank and had to give *additional rebate ratios* on lending. Those ratios were depending on the industrial sector that the loan was given to. With those three measures the currency committee (the administrative monetary authority during that period) wanted to direct investments from 'unproductive' to more 'productive' industrial sectors (Gortsos 1998, Gotis 1989). Therefore massive qualitative and quantitative distortions could be expected, following McKinnon and Shaw. Therefore, economic activity and growth should increase once these measure were abolished.

Table1: Methods of Banking regulation in Greece and the process of liberalization

Areas of financial repression	Methods in Greece	Phase 1 (1982-1986)	Phase 2 (1987-1991) Karatzas Report	Phase 3 (1992-now)
Interest rate ceilings	Administrative fixed interest rates on loans and deposits		Reestablishment of positive real interest rates on loans and deposits. (1987) Market determination of interest rate levels.	
Loan allocation	Loan allocation in favoured sectors. Higher reserve rates and non-interest deposits at the central bank for loans to un-favoured sectors		Abandoning of all measures of public loan allocation. (1993) Abandoning of reserve rates depending on loans for different industries. (1993)	
		General aim: independent monetary policy	General aim: reduction of restrictions in the banking sector	General aim: implementation of guidelines of the European Union

Table 1 gives an overview of the methods of banking regulation in Greece and shows the three phases of the liberalization process. The distinction into three phases of banking regulation follows the analysis of Gortsos (1998: 8f). As observable in table 1, the main part of banking regulation was done from 1987-1993, following the so-called "Karatzas" Report of 1986, in which proposals for a quick and sustainable banking regulation were laid down. The first phase of liberalization does not include any severe changes in the methods of banking regulation, but aims to set up an independent monetary policy and independent central bank. Since the most repressive parts of the banking regulation – interest rate ceilings – were abandoned in 1987, this year is often mentioned as end of banking regulation in Greece, although the second main area of banking regulation – loan allocation mechanisms – were completely abandoned only in 1993 (Panagopoulos and Spiliotis, 1998). The period after (1993-now) is counted as third part of banking liberalization, were guidelines of the European Union were implemented and aimed to increase competition and profitability in the banking sector.

(3) Thirdly, it is important to note that Greece did not suffer from banking instability and banking crises like other less developed countries after deregulation of the banking sector.

Positive growth effects after banking deregulation?

Although Greece can serve as a critical case study and best case scenario, it can be shown, that economic growth rates were not directly positively affected, when concentrating on the liberalization of the *banking sector* (Dutta and Polemarchakis 1989, Gibson and Tsakalotos, 1992).

First the Greek story followed the forecasts: McKinnon and Shaw stated that the increase in the real return on holding money - due to the abolishing of interest ceilings - would lead to an increase of the ratio of money supply M_2 ,which includes apart from the money in circulation also savings and time deposits, and GNP. Graph 2 shows the empirical evidences for these arguments for Greece. It can be seen, that the real return on holding money increased after liberalizing interest rates; also seemed the money supply M_2 to follow the argumentation of financial liberalization theory. Between 1980 and

1985 the ratio of M_2 to GNP increased from 0.619 to 0.810, such a sharp increase in a 5-years period could neither be observed before nor after. Graph 2 shows the real return on holding money on the right axis and the ration M_2 to GNP on the left vertical axis. In the period 1960-1987 heavy regulations accompanied with negative real[1] returns on money could be observed, which means that only increases in the M_2/GNP ratio after the liberalization of interest rates in 1987 would be in line with the argumentation of financial liberalization theory. Comparing the development between the M_2/GNP ratio and the real return on holding money in the 70s it becomes evident that the ratio M_2/GNP follows the trend in real returns on holding money.

**Graph 2: Ratio M2/GNP and the Real return on holding money**
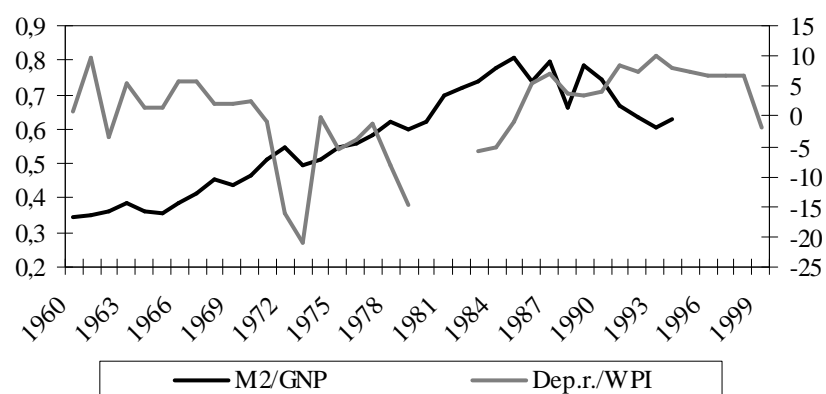
Data source: OECD, Economic Surveys, Greece, various Issues, IMF Database

Despite of this weak evidence for the argumentation of the increase of M_2/GNP ratio due to financial market liberalization the forecasted process stopped at the following causality completely: Due to increases in M_2 also the quantity of private investment should rise, since interest ceilings operate as a financial constraint and hinder the development of private investment.

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[1] adjusted by the whole sale price index due to data availability

As graph 3 indicates, no evidence can be found, that the quantity of investment increased due to the liberalization of interest rates. Neither credit financed private investment, nor the real return on holding money increased during the 80s. Facing this empirical evidence it can be concluded that Greece did not hold its' promises from the view of liberalisation theorists. Although the banking sector is of major importance for the Greek economy. Concluding now that financial market liberalization did not lead to positive growth effects - not even in the best case scenario - would leave apart the development of the stock exchange, which indeed might have a positive impact on economic growth. To analyze these causalities the paper investigates in the following the developments of the stock exchange as a missing aspect of liberalization theory.

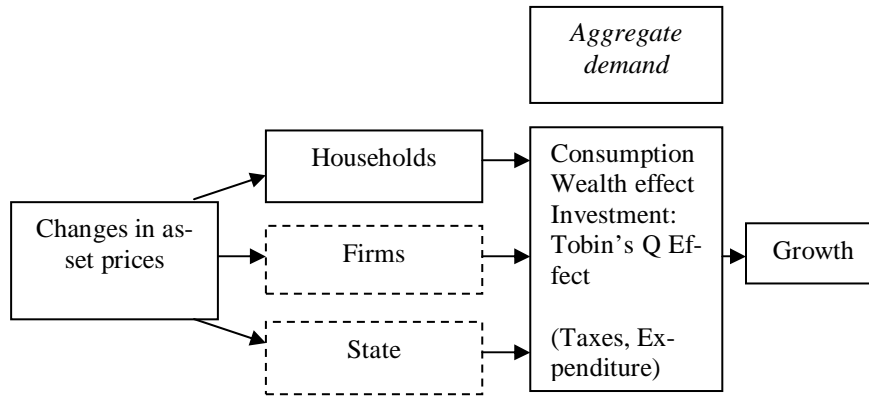**Graph 3: Private Investment and Financial Constraints**
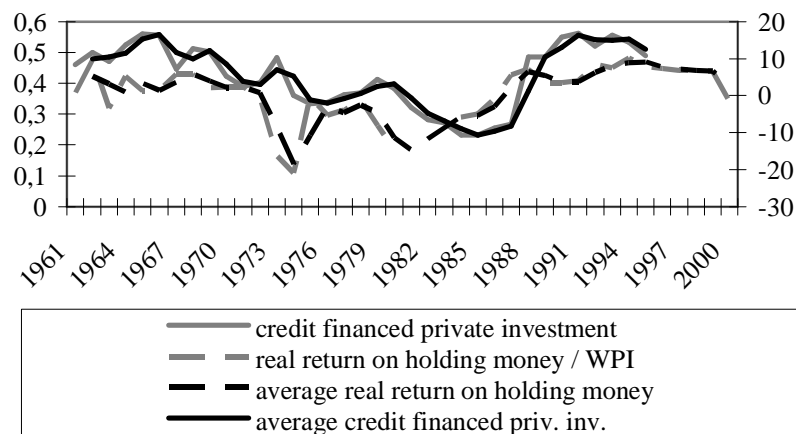
Data source: OECD, Economic Surveys, Greece, various issues IMF Database

3. Theoretical Arguments: Stock Exchange, Wealth and Growth

Especially in the mid 90s, stock exchanges of liberalized financial markets have been characterized by increased market capitalization and an even stronger rise of secondary market volume (Huffschmid, 1999). Due to this development also changes in asset prices become more important.

Numerous econometric studies, which are summarized by Altissimo, et. al. (2005), have tried to capture the interrelation between asset price changes and economic growth via consumption and investment developments. Despite of clearly formulated theoretical backgrounds (see Altissimo et. al. 2005: part 2 and 4), unfortunately *no empirical result*s can be presented that might serve as *overall conclusion*. In general, four channels can be distinguished depending on the actor (firm or household) affected by the change of asset prices (compare graph 4): First the *wealth effect* states that current consumption of households (consumers) is proportional to the total wealth of households under the assumption of maximizing intertemporal utility under a lifetime resource constraint (among others Poterba 2000: 103). The second effect deals with the interrelation of *asset prices and investment* and states, that changes in equity prices might affect corporate sector investment (firms) by influencing the cost of capital, which has be formalized by Tobin's Q (Altissimo et. al 2005; Chatelain et al. 2001). Effects on residential investment (households) are of minor importance in this respect (econometric studies) due to markedly variations in the results across countries (Altissimo et. al. 2005: 34). For the other two channels, empirical evidence is even harder to find as for the Tobin's Q channel (see Altissimo et al. 2005: 4) and are therefore excluded from graph 4. One of these channels is the *balance-sheet channel* dealing with the need of a firm to increase its net worth to reduce its external finance premium (Chatelain et al. 2001). Changes in the net worth directly reflect changes in the financial position of the firm. The forth channels concentrates on the potential effect of *changes in confidence* in markets and intermediaries due to changes in asset prices. A decrease in asset prices might therefore lower the confidence in the market and lead in the following to lower investment and consumption (Altissimo et al. 2005: Appendix 3)

Graph 4: Channels of asset price effects on economic activity (measured by GNP)

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                                        ┌─────────────┐
                                        │ Aggregate   │
                                        │ demand      │
                                        └─────────────┘
                        ┌──────────────┐   ┌──────────────────┐
                   ┌───▶│  Households  │──▶│ Consumption      │
                   │    └──────────────┘   │ Wealth effect    │
┌──────────────┐  │    ┌ ─ ─ ─ ─ ─ ─ ┐    │ Investment:      │   ┌──────────┐
│ Changes in as│──┼───▶   Firms           │ Tobin's Q Ef-    │──▶│ Growth   │
│ set prices   │  │    └ ─ ─ ─ ─ ─ ─ ┘    │ fect             │   └──────────┘
└──────────────┘  │    ┌ ─ ─ ─ ─ ─ ─ ┐    │                  │
                   └───▶   State           │ (Taxes, Ex-      │
                        └ ─ ─ ─ ─ ─ ─ ┘    │ penditure)       │
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Taking this theoretical background as a starting point, it turns out that, in contradiction to the argumentation of financial liberalization theorists described in section 1 and 2, the analysis has to focus primarily on effects on consumption and not investment, since empirical evidence presented in Poterba (2000) and Altissimo et al. (2005) shows, that consumption effects are observable in all economies using econometric analysis, whereas investment effect also depend on the financial structure and are therefore very weak in bank based economies. Since the Greek financial sector can also be classified as a bank based financial system, expected effects are supposed to be small. As Greek households increased their holdings of shares substantially in the late 90s (especially from 1998-2000), when households held in 2000 41 billion EURO worth of equities and 23.2 billion EURO worth of debt securities, which equalled 36.2% and 20.5% of GDP, concentrating on the consumption channel (wealth effect) seems to be reasonable and in line with the focus on Greece as best case scenario.

Similarly to the analysis in section 2 of this paper, discussing the interrelation between asset price changes and economic development will follow on the one hand a similar methodical approach as financial liberalization theorists by using a step by step ex post comparative statistical analysis – bearing in mind that this will not show a full picture of macroeconomic linkages - and will establish on the

other hand a best case scenario by relaying on the potential consumption effects in Greece.

Concentrating on potential wealth effects for households several general assumptions have to be made: Whenever stock prices increase more than the consumer price index this real changes are regarded as an increase in wealth. How far these changes effect consumption depend on the rationality of households. If households act completely rational, these gains from share price changes will affect consumption immediately regardless whether gains are realized or not. If they do not act rational, not realized gains at the stock exchange will not count as wealth increase, since individuals fear the loss of those gains in the short run. To keep the argumentation in the following more simple, households are therefore regarded as acting rational. Furthermore for the following analysis fixed interest rate securities are not taken into account, since gains from changes in prices cannot be analysed independently from changes in interest rates.

Basing on these assumptions, the reaction of households to changes in asset prices can be derived from the savings and consumption function. As Jäckle (1991: 40) shows, households can take three different positions: seller, buyer and 'hold on'. It can be shown, that the position of the seller has a bigger effect on consumption decisions, than the position of the buyer (Jäckle 1991: 56). If shares are bought to sell them again in the future and are not meant to serve as savings, the contradictional effect of a wealth reduction because of buying shares will be small. The position of 'holding on' has the same effect as the position of the seller, since it is assumed that individuals react rational and give the same importance to realized and not realized gains from changes in asset prices. Similarly, gains from changes in asset prices also affect consumption decisions in the 'hold on' position. Therefore, the main point in deriving possible reactions of households is to identify several scenarios for households in 'seller' and 'hold on' position. As the following table 2 shows four possible cases can be distinguished.

Table 2: Households – position: seller

Cases	Reactions to gains from asset prices changes
High wealth/ large financial assets	Consumption unchanged
High wealth / small financial assets	Consumption increase
Low wealth / large financial as.	Consumption increase
Low wealth /small financial as.	Consumption increase

Source: Jäckle (1991: 63)

Under the assumption that households with high wealth hold a small fraction of their wealth in financial assets, gains from asset price changes will only have a minor effect on consumption and are therefore neglectable. All three other cases presented in table 2 offer a stronger reaction to these developments.

Out of the remaining three scenarios, the total effect on consumption in the case of low wealth combined with a high amount of financial assets will be small, since this combination does not seem very likely. The existence of the combination low wealth and small financial assets can be derived from the fact, that firms give company-shares to their employees as part of their income. Therefore also households can accumulate a small fraction of financial assets, although their income derived from labour might not be high enough to generate financial assets out of savings and their wealth is still low. In this case gains from asset price changes are again quoted as immediate changes in wealth and create a consumption effect. The combination of high wealth and low financial assets can be argued with of risk adversity of higher income classes. Here a higher savings ratio can be identified as stronger reliance on savings accounts – setting up financial wealth - than on participation of households on shares, stakes and investment certificates (market denominated assets). The hypothesis, that can be derived is, that the biggest effect will arise when financial assets are distributed widely between middle class households. Therefore, the existence of a middle class accumulating wealth via financial assets becomes an important factor.

Growth effects can be manifested by deriving Keynesian multiplier effects out of an adapted consumption function, which integrates the changes in consumption that might occur due to changes in asset prices, as shown in function (1). Autonomous consumption is not included in the following functions.

$$C = c_y * Y + c_w * Y \qquad (1)$$

c_y marginal propensity to consume from current income

Y current income, which consists of current income from labour and current income from wealth (asset price changes)

c_w marginal propensity to consume from asset price change

The new consumption function consists of consumption based on current income and of consumption based on asset price changes. Therefore, assuming investments and government expenditure to be constant, the following aggregate demand function can be derived (2).

$$Y = (I + G)/(1 - c_y - c_w) \qquad (2)$$

I Investment
G government spending
Y aggregate demand

This modified aggregate demand function also leads to a modification in the investment or expenditure multiplier (m_w) (3).

$$1/(1 - c_y - c_w) = m_w \qquad (3)$$

In this case, the multiplier effect is bigger compared to the normal investment multiplier, which consists of a different numerator. Although c_w is not only smaller than one but also smaller than the marginal propensity to consume from current labour income, the total multiplier effect will be bigger than without including wealth effects. Marginal propensity to save diminishes as part of savings are put into financial assets, which in turn lead to higher consumption

via realized gains in asset price changes and increase current income as a sum from labour income and income from changes in asset prices.[2]

But can those theoretical arguments give insights into the development of the Greek economy?

4. Evidence for Greece

Firstly, the development of the Greek stock exchange is presented and discussed in relation to other Southern European Countries, which undertook similar structural changes in financial markets, to see whether changes follow cyclical and overall macroeconomic developments or if they are individually determined by the Greek economy. Secondly, wealth effects are discussed in Greece and other Southern European Countries.

Are changes in share prices observable?

Only if changes in share prices can be observed, the causal argumentation of the financial liberalization theory can be discussed. In contrast to the stock exchange of Thessalonica, that was founded in 1996 and because of its minor importance is not included in the following analysis, the Athens stock exchange has a long tradition. However, till the mid 80s the stock exchange suffered from a small market size in tradable shares and bonds (Psalits 1996: 35, Euromoney 1996: 2). At the same time (1988) when remarkable changes in the banking sector took place, also institutional and legal changes affected the Athens Stock exchange - also called 'Sophokleos' - and helped to create a modern stock exchange. In the 90s further legal reforms improved transparency and regulation at Sophokleos. These reforms led to the establishment of a market for derivates in 1999 (Athener Zeitung 1999: 9/1). Indeed, the importance of the Athens

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[2] Additional effects on the multiplier seem to be likely, when firms and changes in their investment functions due to stock exchange effects would be taken into account as well – see the discussion of *wealth channels* above. Jäckle (1991) shows, that in this case the total effect on the multiplier would be even bigger.

Stock Exchange as instrument of financial funding increased in the following of these major institutional and structural revisions - as the General Index shows (see Graph 4). Similarly the number of listed firm raised sharply, from 142 in 1993 to 214 in 1996. (Euromoney 1996:1)

Graph 5 presents the development of the General Index and shows percentage changes in the index from 1984 till 2000. It can be seen that, in contrast to the development of the General Index, percentage changes show a very volatile performance at the Athens Stock Exchange. Right after the legal changes in the mid 80s the percentage changes in the General Index were very sustainable, so that an overall positive performance can be concluded. In the mid 90s another period of high positive percentage changes in the General Index can be seen. This trend peaks in 1999 with an increase of 102,19% compared to the previous year.

Apart from the increasing importance of the Greek stock exchange as source of funding, also a sharp rise in the secondary market can be observed. This development is especially important for the theoretical arguments presented in section 2. If the secondary market is very small, asset price changes will not affect consumption as part of demand aggregates and might lead only to a minor growth effect. Graph 6 shows the development of the secondary market in Greece.

Graph 5: General Index of the Athens Stock Exchange
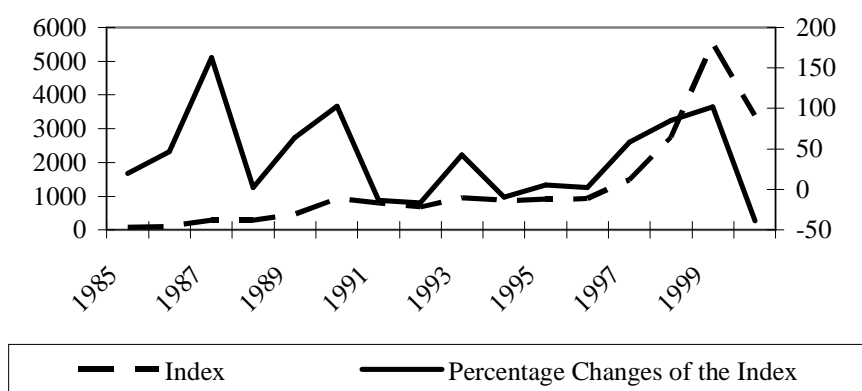
Data source: Fact Book, Athens Stock Exchange, 1998 and 2001

Graph 6: Comparison secondary market to primary market at the Athens Stock Exchange (Millions of Drachmae)
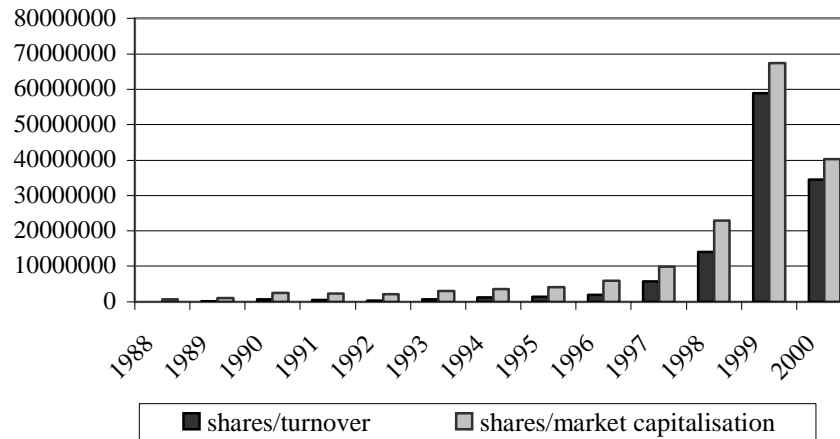
Data source: Fact Book, Athens Stock Exchange, 1998 and 2001

The reason for comparing Greece with the development of other Southern European economies is to show, that the Greek development of the stock exchange does hardly show any difference from other countries. But there are differences in *volatility*. Italy and Spain have been chosen for the comparison because all three countries are members in the European Union and faced the same difficulties of high unemployment and inflation rates in the period of observation.

Although there are national differences, the Southern European Region suffered basically from the same economic problems. By introducing similar economies, which are affected by macroeconomic developments in the same way, does not fully offset the methodical weaknesses of the ex-post comparative statistical analysis, but helps to control for macroeconomic shocks.

Graph 7 shows the development of the Index and the percentage changes in the Index of the Stock Exchanges in Italy and Spain (Madrid). The Index is increasing from the early 80s till the end of the century in both countries. In the mid 80s (1986/87) a short decline is visible, which becomes more obvious by looking at the per-

centage changes in the Index. In Italy a decline in the Index of 32% in 1987 could be observed. A similar development can be seen in Spain. In this case did not manifest in a decline of Index, but in weaker growth rates (9% in 1987) of the Index after the peak of 108% in 1986. Those changes are similar to the developments at the Greek Stock Exchange although Greece faced a higher volatility of the Index. This trend proceeded also in the 90s.
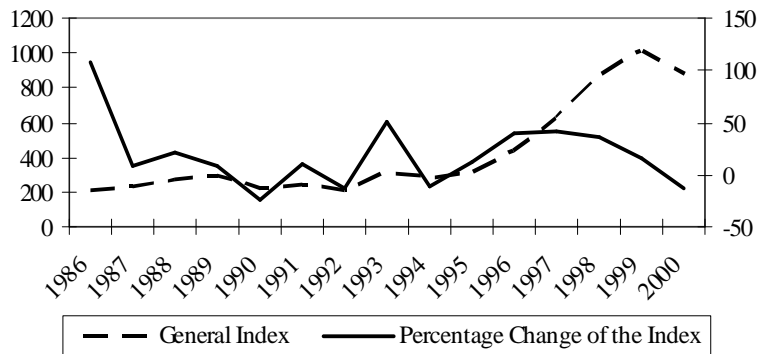
Graph 7: Development of the Index of the Stock Exchange in Italy and Spain (Madrid)

a. Italy
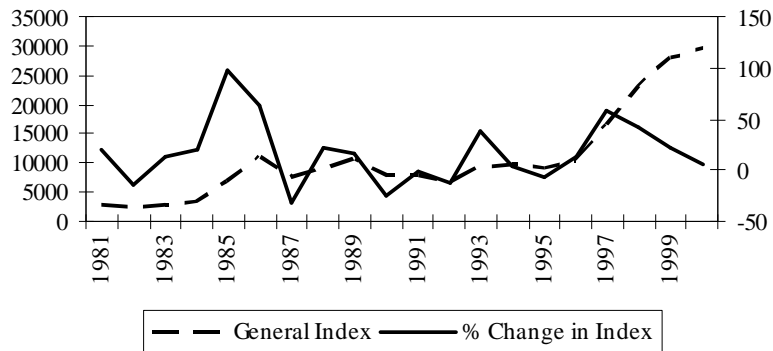
Data Source: Italian Stock Exchange, Fact Book 2001

b. Spain

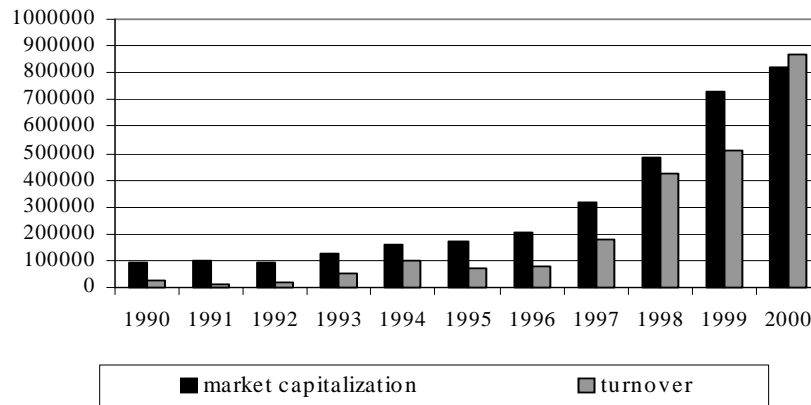Data Source: Madrid Stock Exchange, Fact Book 2002

Comparing those three southern European Countries, Greece, Italy and Spain, another aspect of financial markets development becomes inevitable. At the Greek Stock Exchange a much stronger rise in the Index can be seen than in the other countries. From 1985 to 2000 the Index of the Athens Stock Exchange climbed up from 70.95 to 3388.86 points and reached a peak 1999 at 5535.09 points. Compared to this, the Index of the Italian Stock Exchange increased from 2935 points in 1985 to 29681 points in 2000 and the Index of the Stock Exchange in Madrid rose from 280.3 points in 1986 to 880.7 points in 2000. The highest increase can therefore be observed in Greece with a 4776% rise in the Index of the Athens Stock Exchange in the respective period, followed by the Index of the Italian Stock Exchange, that showed an increase of 1011% and the Madrid Stock Exchange Index with an increase of 314% .

In Southern European Countries similar conclusions, regarding the development of national stock exchanges, can be drawn by looking at capitalization and turnover of the stock exchanges. Graph 8 shows the primary and secondary markets in Italy and Spain as a comparison to the Greek development. Again Greece faced the strongest percentage increase. In all three economies secondary market turnover was increasing stronger than market capitalization and even exceeded market capitalization in Italy in 2000. The question asked above, whether asset prices changes occurred, can be answered positively, since market capitalization and trading, as well as volatility increased in Greece after financial liberalization.

Therefore, the analysis proceeds with the discussion of the causalities implied in the argumentation of financial liberalization theory. Basically, the discussion ranks around two questions: Is there any increase in wealth from financial assets and is an overall change in consumption observable? If a change in consumption can be observed, can this fact be linked to the development of share prices?
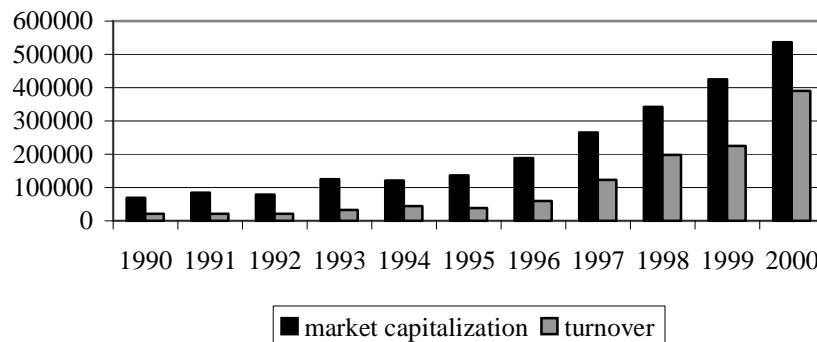
Graph 8: Comparison of the secondary and the primary market in Italy and Spain

a. Italy (Million EURO)

Data Source: Italy Stock Exchange, Fact Book, 2001

b. Spain (Million EURO)

Data Source: Madrid Stock Exchange, Fact Book 2002

Is any increase in wealth from financial assets and is an overall change in consumption observable?

During the late 80s and 90s changes in wealth from financial assets can be observed in Greece. As graph 9 indicates, increased the wealth from holding financial assets to GDP ratio strongly in the late 80s and was followed by rising volatility in the 90s. Since

wealth accumulation from financial assts was not increasing continuously, the general effect of asset price changes on consumption and growth can be regarded as rather small. Nevertheless, it is worth looking at potential effects to see whether the causal argumentation of the financial liberalization theory holds, no matter how big the effects are.

Graph 9: Percentage changes in consumption and percentage changes of financial assets to GDP ratio
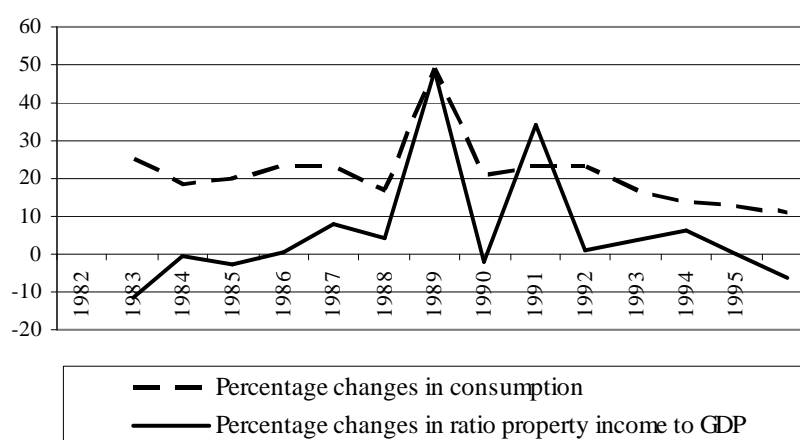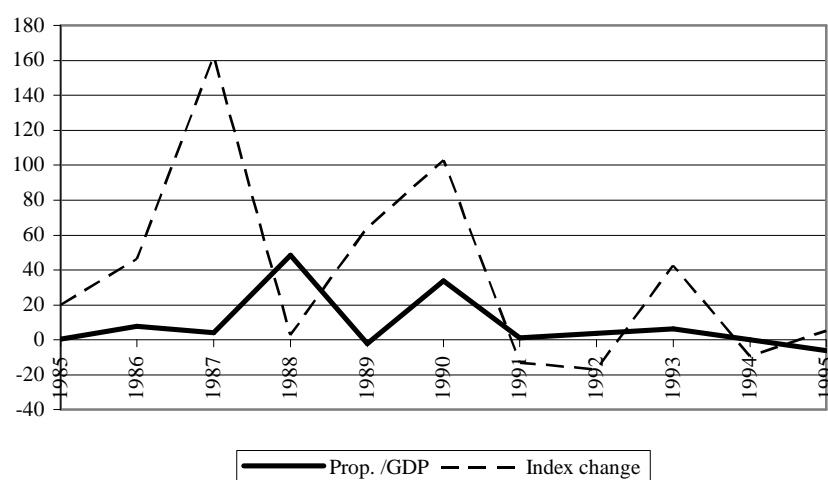

Data source: OECD, Economic Surveys, Greece, various Issues

Graph 9 also gives insights in the relationship between changes in consumption and wealth from financial assets. As stated in section two, an increase in wealth from financial assets would lead to changes in consumption, although these changes are smaller due to a smaller marginal rate of propensity for wealth changes arising from financial asset price changes than for wage income (compare equations 2 and 3). The relationship is also valid for Greece as graph 9 shows. Developments in wealth from financial assets are combined with smaller percentage changes in consumption following the same trend. The question that arises now, is whether changes in wealth from financial assets can be related to the development of the stock exchange and do not reflect increased income from entrepreneurship.

Therefore, graph 10 compares changes in the wealth from financial asset prices measured by GDP with changes in the general ASE index. It seems, that changes in wealth from financial asset prices react to changes in the general index with a time lag of one to two years and follow the same trend.

Graph 10: Percentage changes in ratio income from capital to GDP and percentage changes in ASE index
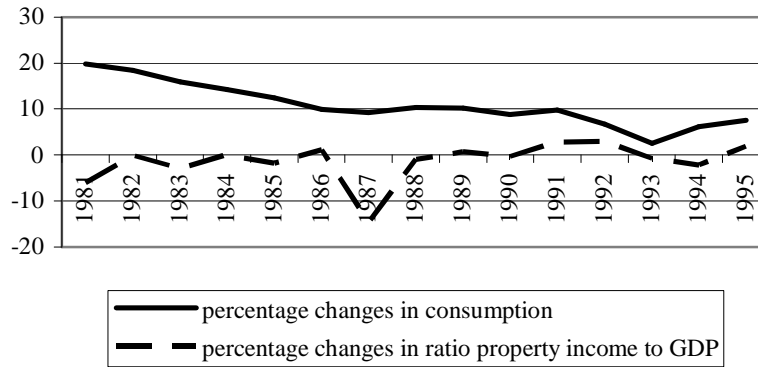

Data source: OECD, Economic Surveys, Greece, various Issues

Facing this evidence, it can be concluded that in the case of Greece an interrelation between a rise in wealth from financial asset price changes, which leads to wealth gains for households and changes in consumption, cannot be neglected. Comparing these results with the developments in Italy and Spain, the Greek experience seems to be an exception.

To incorporate the Greek effects into a general development of stock exchanges and effects on consumption, the Greek experiences are compared with the developments in Italy and Spain. Graph 11 shows the developments regarding changes in consumption compared with changes in the ratio of wealth from financial assts to GDP
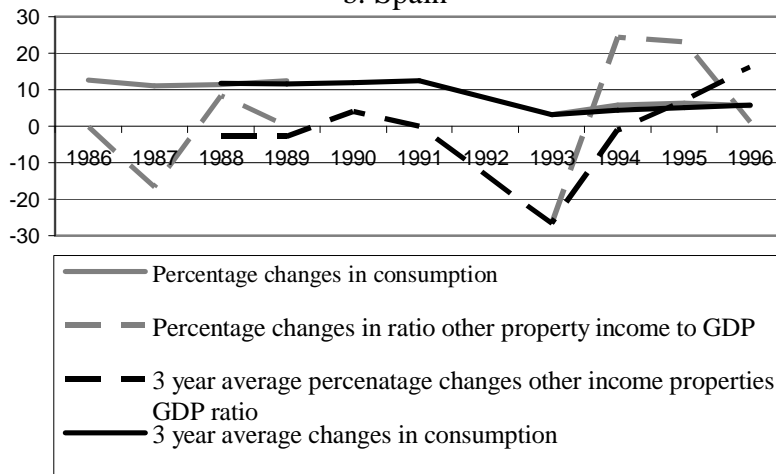
Graph 11: Italy and Spain: Percentage changes in consumption and percentage changes of wealth from financial assets to GDP ratio

a. Italy

percentage changes in consumption

percentage changes in ratio property income to GDP

Data Source: OECD, Economic Survey Italy, various issues

b. Spain

Percentage changes in consumption

Percentage changes in ratio other property income to GDP

3 year average percenatage changes other income properties GDP ratio

3 year average changes in consumption

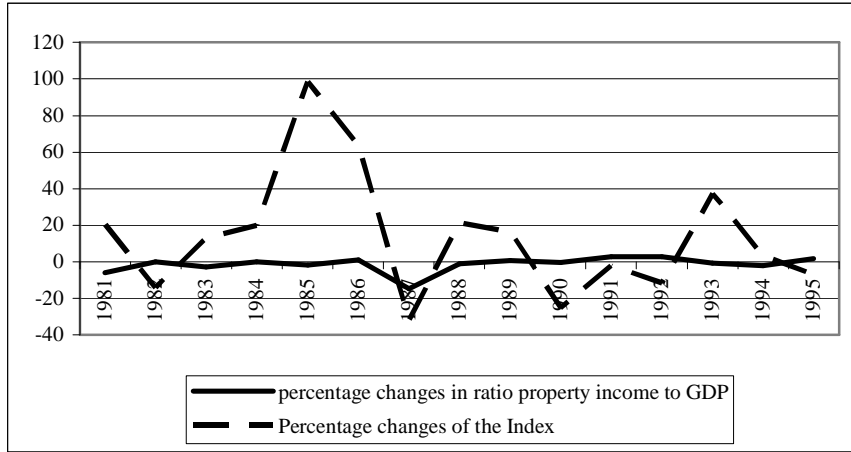Data Source: OECD, Economic Surveys Spain, various issues

for Italy and Spain.[3] Regarding the changes in consumption Italy and Spain follow the same development, although the percentage changes are constantly stronger in Italy than in Spain. Comparing these results with the evidence for Greece (graph 9), it can be concluded that changes in consumption as well as volatility are higher in Greece than in the other two economies.

This argument gains further evidence when taking the ratio of percentage changes of wealth from financial assets to GDP into account and comparing these results with changes in consumption (graph 12). In Greece a strong correlation between changes in consumption and changes in the ratio of wealth from financial assets to GDP can be observed, whereas such a relation is not obvious neither for Italy nor for Spain. (comparing graph 12 a, b with graph 10) Therefore, an overall effect of the development of the stock exchange to increase consumption and increasing GDP by multiplier effects does not seem to be likely. The development of changes in the index of the national stock exchange in comparison to changes in wealth from financial assets is in line with this argument. Neither in Italy nor in Spain a correlation between those variables is visible according to the data above. Although the potential effects for economic growth can be assumed to be rather small in Greece and neglectable in other Southern European Countries it has to be asked, whether the distribution of financial assets contributes to the assumption made in section two and promotes the consumption of households.

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[3] In the case of Spain OECD data distinguishes between 'property and entrepreneurial income' and 'other property income', which is unfortunately not clearly defined. Both variables follow the same trend over the years (trend line for 3 years) although the variable 'other property income' shows a higher volatility. It seems plausible that 'other property income' summarizes interest rate income and property income arising from owning real estate, whereas property and entrepreneurial income concentrates on income from independent work. Following this argumentation the analysis proceeds by concentrating on changes of 'other property income' – wealth from financial asset price changes are included here.
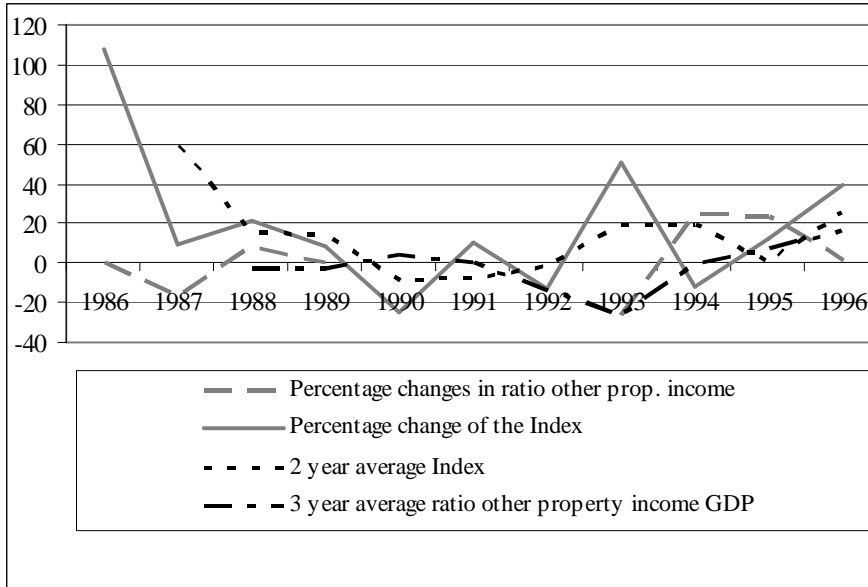
European Political Economy Review

Graph 12: Italy and Spain: Percentage changes in income from capital to GDP ratio compared to percentage changes in ASE index

a. Italy

Data Source: OECD, Economic Surveys, Italy various issues; Italian Stock Exchange, Fact Book 2001

b. Spain

Data Source: OECD, Economic Surveys, Spain, various issues: Madrid Stock Exchange, Fact Book, 2002

Can changes in consumption be linked to the evolution of asset prices, when taking the distribution of wealth from financial assets into account?

So far, it seems as if multiplier effects resulting from the developments on the stock exchange followed by changes in consumption are possible for Greece, whereas no evidence for this causality is visible for Italy and Spain. Since data for the distribution of shareholders within the income percentiles (discussed in section two) is not available to analyse the interrelation between asset prices and consumption changes, the approach of this paper is to observe the macroeconomic development of income distribution by using the Gini-Coefficient, which relates the income distribution of a country to a completely equal distribution and shows a result between 0 and 1. The hypothesis of this paper is, that changes of the Gini-Coefficient towards a more equal distribution of income increases the probability of consumption effects resulting from asset price changes, since all relevant income classes would be affected. According to the explanations in section two, changes in consumption should be observable in lower income classes regardless the ratio of wealth of financial assets to income.

Table 3: Gini-coefficient, 1981, 1988, 1993

Year	Gini Distribution	Area	Reference Unit
1981	0,3679	All	Monetary Income / Household
1988	0,3766	All	Monetary Income / Household
1993	0,3270	All	Income / Household

Source: Household Survey Data, World Bank

According to a survey by Milanovic and Yitzhaki (2001), that explores the world income distribution, Greece shows a Gini coefficient of 0.32 relying on data from 1988 and 1993 and is ranked as poorer country within the group of Western European countries including USA, Israel, Australia, New Zealand and Turkey. The study also provides us with an overlapping index of 0.880 in the case of Greece, which indicates that there is a high percentage of relatively rich people. Looking at the household survey data from the World Bank similar conclusions can be drawn; also there Greece is indi-

cated with a Gini-Coefficient of 0.327 in the year 1993 (table 3). Although the Gini-Coefficient does not provide us with data which people are holding shares, it can be stated, that income distribution in Greece became more equal since the Gini-Coefficient decreased between 1988 and 1993 from 0.36 to 0.32.

Therefore it can be concluded, that consumption effects due to the development on the stock exchange seem to be likely although their quantitative effect can be regarded as small. This argument still holds, although it is not clear how many people are exactly holding shares and shareholding might be concentrated among few people.

Conclusions

In the short run, positive evidence regarding the influence of positive wealth changes, arising from financial asset price changes, to consumption and growth can be found. On the other hand it has to be noted, that data indicates that increases in the stock exchange are connected with simultaneously increasing volatility. This shows, that it is very important to incorporate the linkages between the stock exchange and wealth effects into critical arguments regarding financial liberalization theory. Conversely any positive effect to GNP growth has to be doubted in the long run, since in the short run households can increase their wealth and increase consumption, whereas for a long term overall positive effect also potential losses in wealth and its strong negative effects on GNP growth have to be taken into account. Therefore, the argumentation of financial liberalization theory does not seem to lead to the theoretically expected outcome – not even in the "best case" scenario.

The case of Greece seems exactly to reflect this conclusion, although the microeconomic distribution of shareholding within income classes is still missing. There is a reaction of wealth from financial assets to changes in the general index of the Athens Stock Exchange; also consumption seems to react with a time lag to changes in wealth from financial assets and will therefore have an multiplier effect on GDP. It has to be taken into account, that income distribution becomes more equal and therefore the probability increases, that asset price changes affect consumption. Since

changes in wealth from financial assets do not reflect a trend through the last decades but seem to react very volatile and a rise in wealth from financial assets are followed by a decrease, the total effect on GDP will be small. Further on the conclusion can be drawn, that the Greek example does not reflect the overall development as the comparison with Italy and Spain showed.

Therefore the overall conclusion is, that there is no strong connection between financial development and GNP growth via multiplier effects. Although no evidence could be found that the causal argumentation of financial liberalization theory is implausible the potential positive effects are neglectable small. Since the Greek case showed an optimum basis for the analysis and suggested the best possible outcome the general effect of the liberalization of stock markets for growth has to be doubted.

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