

A Note on Money and Economic Growth in the Baltic States

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In a neoclassical framework, it is established that the real money stock is an important input in the aggregate production function. This importance is due to that money is assumed to release capital and labour from the distribution and exchange process of goods and services allowing them to be more effectively used in the production process. Thus, the theoretical literature seems in general to be supportive of money as an input in the production function since it is argued to what extent rather than whether theory incorporates money as an input. However, the empirical literature is less clear on money as a significant input in the production process. Conclusions in the empirical literature is that the output elasticity of real money is negligible in developed economies while it is highly significant for developing economies where the experience from transition economies is neglected. This paper builds on the Solow (1957) seminal approach adopted in Startz (1984) to evaluate the role of the real money stock in the production process in the Baltic States. The results of the paper systematically reveal positive output elasticities of money in the Baltic States. However, the results are not only dependent on the choice of the monetary aggregate but also on the opportunity cost of capital where the role of money is less important with the use of market determined interest rates relative to proxy variables of the interest rate. The elasticity with use of the market determined interest rates is still more important than the general conclusion found in Startz (1984). The results are consistent with the neoclassical monetary theory and its incorporation of real money balances as an important input in the production function. Furthermore, money appears to be complementary to physical capital in line with the McKinnon-Shaw hypothesis. To promote economic growth, policy-makers should not hinder the development of the money and financial markets. To improve the growth potential in Estonia and Latvia, the development of the capital markets should continue for a more efficient use of the different production factors in the production process. The development of the capital markets will further release capital and labour from the distribution and exchange process of goods and services and allowing them to be more efficiently used in the production of goods and services. Increased financial stability will increase the credibility of the financial markets and the use of those markets in channelling financial capital in a more efficient way. Implementing price stability can enhance the growth potential as higher inflation can lead to lower demand for real money balances due to higher expected price levels as a

consequence of increased uncertainty. Changes in the real money balances was proved to significantly affect the output elasticity of money and since money is most likely complementary to physical capital the outcome would be detrimental to aggregate output.

Keywords: *Baltic States, Economic growth, Elasticity, Money* JEL classification: *E51, E32.*

Introduction

In a neoclassical framework, it is established that the real money stock is an important input in the aggregate production function. This relationship is particularly emphasised in the monetary growth models of Friedman (1969) and Stein (1970) where it is argued that money is an essential input. This importance is due to that money is assumed to release capital and labour from the distribution and exchange process of goods and services, thus allowing them to be more effectively used in the production process of goods and services. Accordingly, it has become a common procedure to include the real money stock as an input when estimating the production function. However, Moroney (1972) argues that such an approach is inefficient since money has a broader implication in the production process than can be captured by simply treating money as a factor of production equivalent to physical capital and labour. Furthermore by use of money as an exchange device, the ability of the typical data on money to truly reflect the more efficient use of other production resources is questioned in Fischer (1974). In accordance with the non-neoclassical framework, it is argued in Ben-Zion and Ruttan (1975) that money affects real output through aggregate demand rather than aggregate supply channels.

As a result, the theoretical literature seems in general to be supportive of money as an input in the production function since it is argued to what extent rather than whether theory incorporates money as an input. However, the empirical literature is less clear on money as a significant input in the production process. The early work in Sinai and Stokes (1972) on the role of money as a production factor concludes that the real money stock when added to a Cobb-Douglas production function proves highly significant for the USA. Further studies lend some support, e.g. Short (1979), Simos (1981) and Sinai and Stokes (1989), and some do not, e.g. Niccoli (1975), Prais (1975) and Nguyen (1986), to the general conclusion of Sinai and Stokes (1972). The estimates of the output elasticity of real money in these studies vary considerable

from under 0,01 to more than 1,0. However, the results depend on the included variables, the specific definition of the monetary aggregate in the analysis and the particular time period.

Using the translog production function allowing for interactions among factor inputs enabling a more rich specification of the relationships among growth and factor inputs not allowed for in the more commonly used Cobb-Douglas approach, Evans et al. (2002) find evidence in their panel of 82 countries of an interaction between money and economic growth. The results suggest that financial development is at least as important as human capital in the growth process. Thus, ignoring interactions between money and growth are likely to render misleading results.

More recent evidence lend support to the mixed results on the role of money as an explanatory variable in the growth process as outlined in Petrucci (1999), Hosoya (2002), Hsing et al. (2005), Shan (2005) and Shaw et al. (2005). Allen et al. (2005) suggests the importance of alternative financing channels and governance mechanisms, such as those based on reputation and relationships, in explaining growth in the rapid growing China characterised with neither a well developed legal nor financial system. Analysing the United Arab Emirates, Darrat et al. (2005) find no dampening effect from financial deepening on cyclical fluctuations in the short-run but strong effects in the long-run. Hence, growth volatility reductions expected from further financial developments are slow to materialise especially in countries with relatively large and well-functioning financial sectors. Lai et al. (2005) analyse nominal income and money growth targeting and their relative effects in influencing economic growth. The results favour money growth as a nominal anchor as local indeterminacy more easily emerges under a regime of nominal income targeting pointing at the importance of money in the growth process related to the conduct of economic policy.

As outlined in Darrat and Al-Yousif (1998), the aggregate production function approach seems unable to settle the debate regarding the role of money in the production process. Furthermore, Fischer (1974) and Nguyen (1986) contend that the production function approach is inherently difficult and largely useless for this purpose. In the paper by Startz (1984) related to the work in Solow (1957), an alternative approach to study the contribution of money to aggregate production is proposed. This approach is also utilised in Darrat and Al-Yousif (1998) where it is argued that the potential shortcomings of the standard production function approach is avoided. The conclusion in Startz (1984) using U.S. annual data is that the output elasticity of real money is negligible while it is highly significant in Darrat and Al-Yousif (1998) using data for Kuwait, Saudi Arabia and the United Arab Emirates. The conclusion in the papers renders support for the real money supply in determining aggregate supply in developing economies as outlined in the paper by Darrat and Al-Yousif (1998) but not so in a developed economy as outlined in the paper by Startz (1984).

Research on the role of money as an explanatory variable in the growth process has generally been conducted on developing or developed countries ignoring the

experience from emerging economies. This paper adopts the procedure by Startz (1984) to extend the literature by examining the role of money in the aggregate production process¹ in the emerging economies of the Baltic States. The paper study the contribution of money on aggregate production related to market determined as well as proxy variables for the opportunity cost of capital as suggested in Wong (1977). The main objective of the paper is to evaluate the impact of changes in real monetary aggregates on economic growth with a non-technical approach. Thus, there is no claim that the results represent the precise contribution of money in the production function. In contrast to Startz (1984) and Darrat and Al-Yousif (1998), this paper furthermore extends the literature by highlighting the importance of not only the choice of the monetary aggregate but also of the choice of the opportunity cost of capital. It is shown that the output elasticity of money is not only significantly dependent on the choice of the monetary aggregate but more so by the choice of the opportunity cost of capital, i.e. the interest rate. The paper is organised as follows. Section two contains a theoretical background and an analysis of the empirical results and section three includes conclusions and policy implications.

Theoretical background and empirical results

The issue of money as a significant factor in determining economic growth has been of a central concern in economics and the policy implementation process. In McKinnon (1973) and Shaw (1973) it is argued that the financial system is a key determinant of economic growth particularly in developing countries where those countries often are characterised by fragmented and embryonic capital markets. Whether this is also especially of importance in emerging economies such as the Baltic States with developed capital markets is not all that clear in the literature. It is furthermore argued that the real money stock becomes a complement rather than a substitute to physical capital under the circumstances of less developed capital markets. Therefore, larger money holdings of real money balances are assumed to enhance rather than inhibit private incentives to accumulate physical capital.

However, the conclusion in Startz (1984) against the productivity of money implies a concern for the efforts to improve the scope and operation of the monetary system if this conclusion is general. This is of a special concern for developing countries where significant amounts of the scarce resources of the country generally have been channelled to improve and liberalise the financial system as an engine of economic growth. On the other hand, the conclusion in Darrat and Al-Yousif (1998) render significant support for the real money supply in determining the aggregate supply.

A general production function with the real money supply as a production factor can be defined as

¹ The assumptions made by Startz (1984) of constant returns to scale and long-run competitive equilibrium is assumed in the paper but not validated for the Baltic States. The same assumptions are made in Darrat and Al-Yousif (1998).

$$Y = f(K, L, M^s/P) \quad (1)$$

where Y is output or GDP, K is the physical capital stock, L is the amount of labour and M^s/P is the real money balance symbolising the financial capital stock. The production function is assumed to feature the general characteristic of a diminishing marginal product, i.e. $\partial Y/\partial X > 0$ and $\partial^2 Y/\partial X^2 < 0$ where X is K , L or M^s/P , respectively.

The approach by Startz (1984) relying on Solow (1957) analyses the output elasticity of money by its factor share of total output. The annual marginal revenue product of money is equalized to its opportunity cost reflected by the nominal interest rate. Thus, the output elasticity of any factor can be defined as the factor's marginal product times the real amount of the factor used in the production divided by total output. The output elasticity of money referring to money as a physical input can then be computed as the nominal interest rate times the real money balance divided by the nominal output relying on the marginal revenue product of money defined as

$$\frac{\partial Y}{\partial M^s} * P = R \quad (2)$$

where M^s is the money supply, $\partial Y/\partial M^s$ is the marginal product of money, P is the price level and R the nominal interest rate. Eq. (2) is then equivalent to

$$\frac{\partial Y}{\partial M^s/P} = R \quad (3)$$

which can be substituted into what Startz (1984) determine as the Solow estimator of the output elasticity of money defined as

$$\frac{\partial Y}{\partial M^s/P} * \frac{M^s/P}{Y} = \frac{R * M^s/P}{Y} \quad (4)$$

To compute the output elasticity of money in the Baltic States, the nominal GDP and different monetary aggregates and opportunity costs of capital is utilized where the data² is collected from EcoWin and *International Financial Statistics*. The data are at the quarterly frequency and range from the first quarter 1994 to the second quarter 2003 for Estonia, the first quarter 1995 to the second quarter 2003 for Latvia and the third quarter 1994 to the third quarter 2003 for Lithuania. GDP is used as a proxy for output. The monetary aggregates³ used for Estonia

and Latvia are the monetary base, M1 and M2 and for Lithuania is the M1 and M2 used. The real aggregates are constructed by use of the consumer price index of each country.

A measure of the opportunity cost of capital in developing countries is either non-existent or at best not very reliable partly depending on that the financial and capital markets outside the commercial banks is not that well developed. The financial and capital markets in the Baltic States have developed continuously during the period used in this paper but still doubts has to be cast on if the interest rates available are credible measures of the opportunity cost of capital for the entire period under consideration. Therefore, alternative measures of the opportunity cost of holding money will be used together with the market determined interest rates. The Estonian market determined interest rate is the money market rate and for Latvia and Lithuania the money market rate and the Treasury bill rate is used where all interest rates are denoted in percentages.

The use of different proxy measures of credit restraint is suggested in Wong (1977) where two measures are particularly recommended⁴ used in Darrat and Al-Yousif (1998) as well. The first measure is the ratio of expected total deposit flow to actual total deposit flow in commercial banks which approximates credit market conditions and the degree of credit rationing. Wong (1977) define the expected total deposit flow as the average flow over the preceding periods adjusted for the average growth of deposits over the estimation period. The preceding periods used in this paper will follow Darrat and Al-Yousif (1998) for comparison purposes where three preceding periods is used. When expected deposits rise relative to actual deposits, credit becomes tighter and banks tend to ration credit which signal higher interest rates although that the interest rate may not actually rise due to e.g. government controls. The second proxy of the nominal interest rate is defined as one minus the ratio of domestic credit to national income. This proxy has the advantage of expressing the degree of credit restraint relative to growth in the economy. When credit becomes abundant the measure should decline which indicates easy credit market conditions.

The output elasticity of money is calculated and graphed in figure 1 – 11 with the use of the different monetary aggregates and opportunity costs of capital for each country. Each figure gives the elasticity for the different monetary aggregates given one and the same opportunity cost of capital. The output elasticity of real money in the Baltic States is generally exceeding the results reported by Startz (1984) where the elasticity of the real base money in the USA never exceeded 0,01. However in the paper by Darrat and Al-Yousif (1998), the elasticities range from 0,29 to 2,23 for the real base money in Kuwait, Saudi Arabia and the United Arab

² The range and variables to proxy the different effects of the output elasticity can differ between the countries due to availability of data.

³ The total aggregates are used without distinguishing between money balances held by business firms and those held by households, even though the former in principle should be used. As outlined in Darrat and Al-Yousif (1998), the elasticity estimates are then only valid under the

assumption of constant returns to scale which can be challenged for the countries in this paper.

⁴ The variables are proxies for the opportunity cost of capital which solely focus on the supply-side and ignoring the demand-side of the capital market.

Emirates. The lowest value for the Baltic States is just around 0,01 for Estonia using the real base money and the money market interest rate and the highest is 3,7 yet again for Estonia using the real M2 monetary aggregate and the expected total deposit flow interest rate proxy. The elasticities vary between the monetary aggregates in the different economies but it varies considerably between the different opportunity costs of capital with a clear distinction between the market determined interest

rates and the proxy variables. The opportunity cost that generally generates the lowest elasticities is the money market rate and the highest elasticities are generally generated by the expected total deposit flow interest rate proxy variable. Thus, the choice of the opportunity cost of capital is crucial for the amplitude of the elasticity and therefore for the policy conclusion concerning the contribution of money in the production process in the Baltic States.

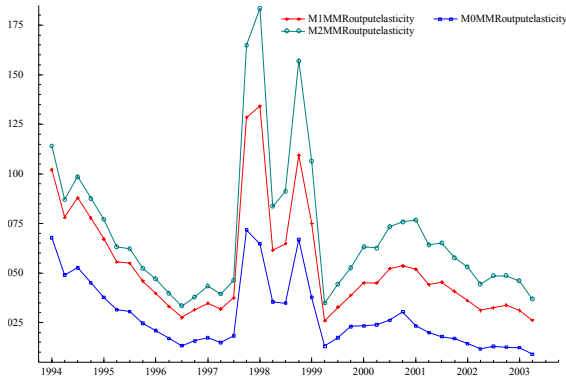


Figure 1. Output elasticity of real money with the money market rate as the opportunity cost of capital in Estonia

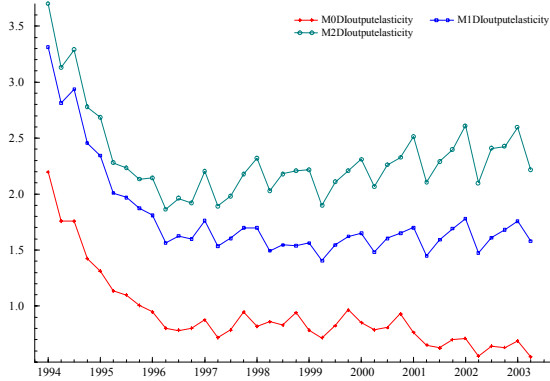


Figure 2. Output elasticity of real money with the deposit flow proxy as the opportunity cost of capital in Estonia.

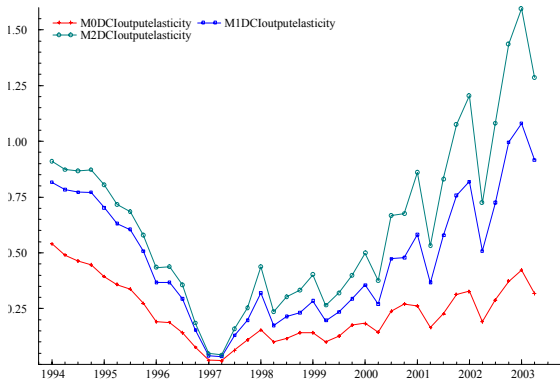


Figure 3. Output elasticity of real money with the domestic credit proxy as the opportunity cost of capital in Estonia.

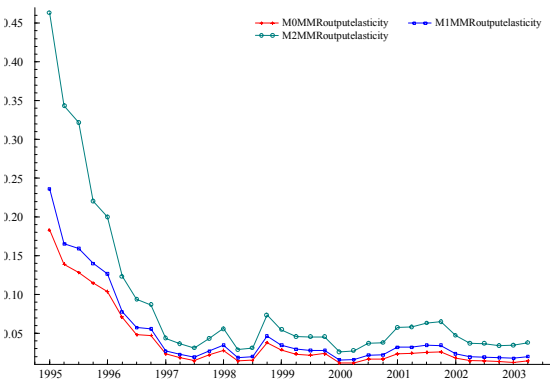


Figure 4. Output elasticity of real money with the money market rate as the opportunity cost of capital in Latvia.

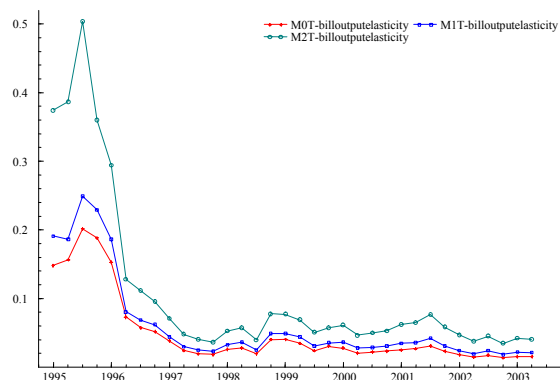


Figure 5. Output elasticity of real money with the Treasury bill rate as the opportunity cost of capital in Latvia.

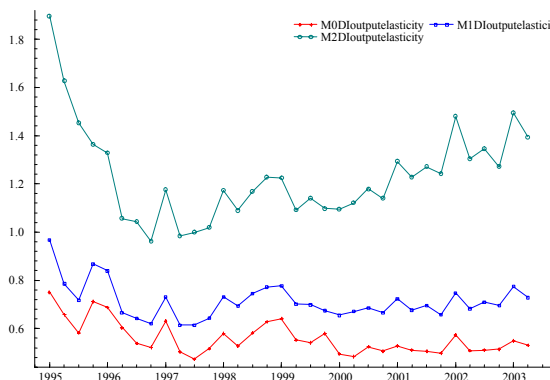


Figure 6. Output elasticity of real money with the deposit flow proxy as the opportunity cost of capital in Latvia.

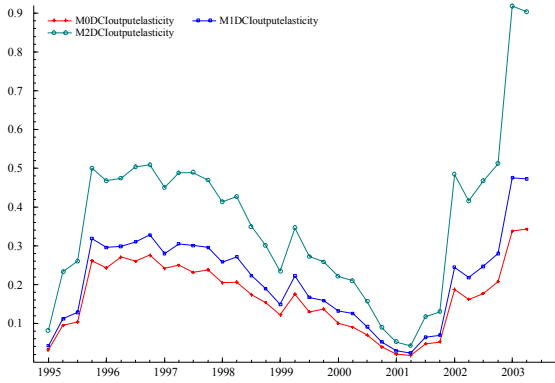


Figure 7. Output elasticity of real money with the domestic credit proxy as the opportunity cost of capital in Latvia.

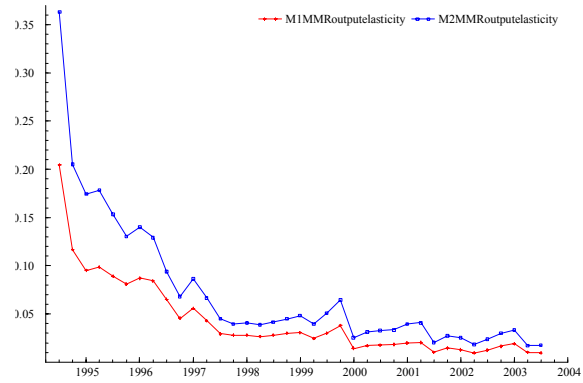


Figure 8. Output elasticity of real money with the money market rate as the opportunity cost of capital in Lithuania.

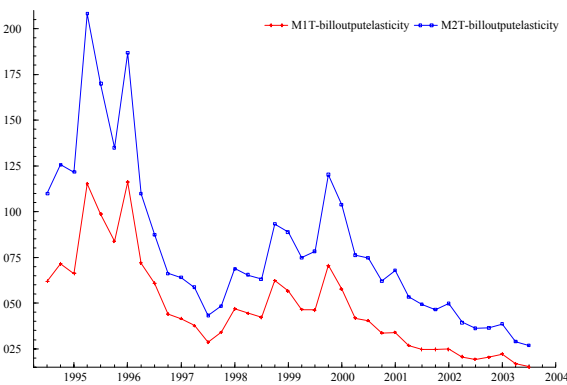


Figure 9. Output elasticity of real money with the Treasury bill rate as the opportunity cost of capital in Lithuania.

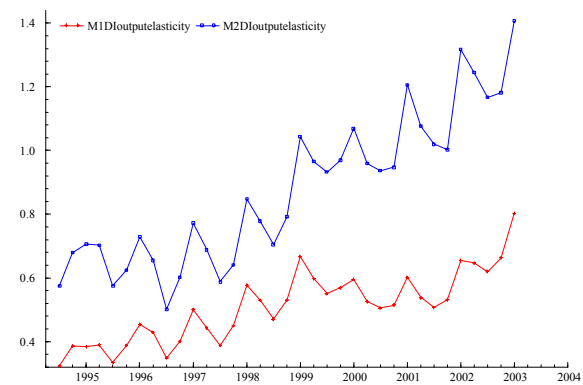


Figure 10. Output elasticity of real money with the deposit flow proxy as the opportunity cost of capital in Lithuania.

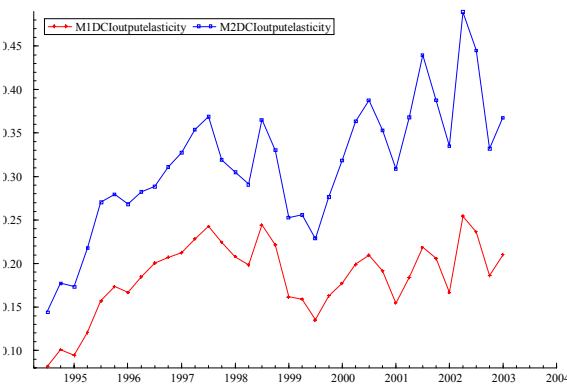


Figure 11. Output elasticity of real money with the domestic credit proxy as the opportunity cost of capital in Lithuania.

As discussed in Darrat and Al-Yousif (1998) and Wong (1977), the opportunity cost of capital in developing countries is at best not very reliable partly depending on that the financial and capital markets outside the commercial banks is not that well developed. This might also be the case for emerging markets especially during the early stages of transition. To scrutinise between the different opportunity costs of capital, the interest rates on three months T-bills, 5-year and 10-year government

bonds in Sweden, the U.K. and the USA will be used as benchmark countries⁵ where it is argued that the financial markets in those economies are well developed. Figure 12 – 17 outlines the 10-year government bond rate in the USA and the market determined interest rates or the two proxy interest rates discussed in Wong (1977)⁶ for each Baltic country. Each graph is rescaled for comparison purposes. The market determined interest rates in Lithuania evolves over time in line with the interest rates in the benchmark countries to a larger extent than the proxy variables. On the contrary, the proxy variables in Estonia and Latvia mimics the interest rates in the benchmark countries to a larger degree relative to the market determined interest rates.⁷ Thus, the most reliable opportunity cost of capital for the output elasticity of money is argued

⁵ To conserve space, the interest rate on the 10-year U.S. government bond will be used in the figures for comparison purposes as the interest rates with a different time to maturity and/or country generates the same conclusion as for the 10-year U.S. government bond.

⁶ The money market rate is the only market determined interest rate available for Estonia.

⁷ For Latvia, the proxy interest rates and especially the deposit interest rate evolves with a similar pattern relative to the 10-year U.S. government bond rate although sometimes with a lag and sometimes independent from the U.S. interest rate. This pattern is as strong for the market determined interest rates as for the proxy interest rates concerning the general evolution but not to such a high degree concerning short-run changes.

to be the proxy variables in Estonia and Latvia but the market determined interest rate for Lithuania. The role of money in the production process will then be related to the output elasticity calculated by use of the market de-

termined interest rate in Lithuania and to the output elasticity calculated by the use of the proxy variables for Estonia and Latvia relying on the different monetary aggregates.

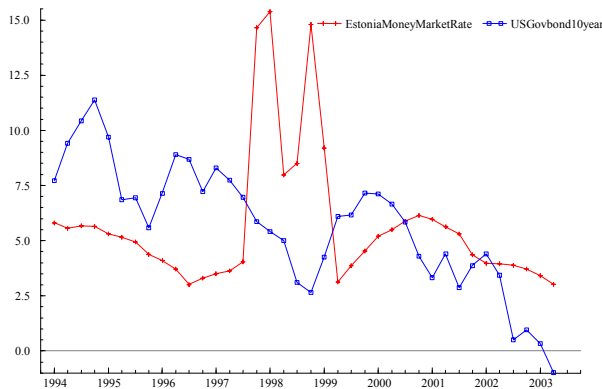


Figure 12. Comparison of the Estonian market determined interest rate and the US 10-year government bond interest rate.

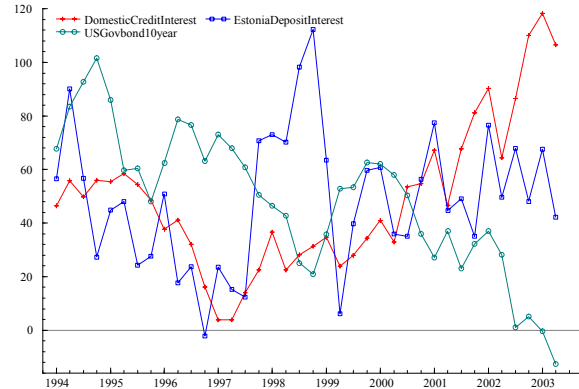


Figure 13. Comparison of the Estonian proxy interest rates and the US 10-year government bond interest rate.

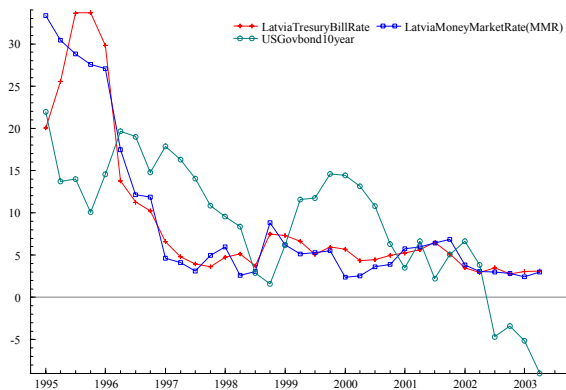


Figure 14. Comparison of the Latvian market determined interest rates and the US 10-year government bond interest rate.

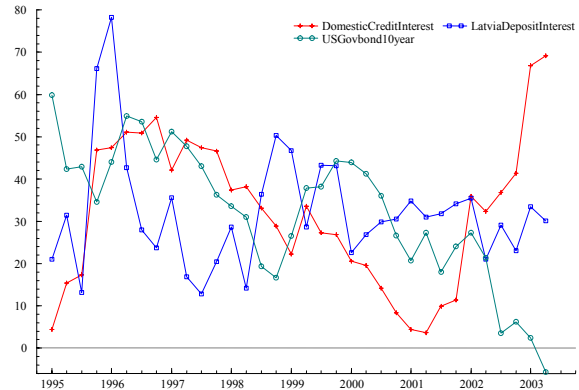


Figure 15. Comparison of the Latvian proxy interest rates and the US 10-year government bond interest rate.

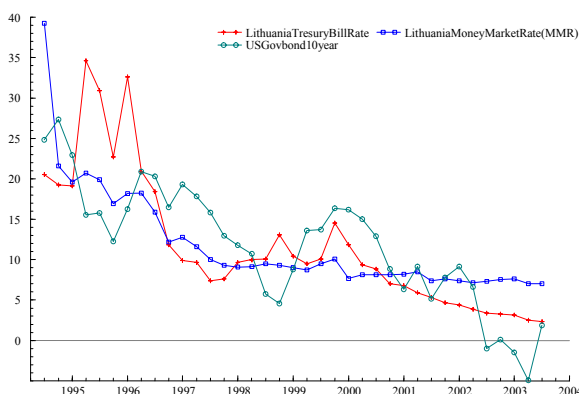


Figure 16. Comparison of the Lithuanian market determined interest rates and the US 10-year government bond interest rate.

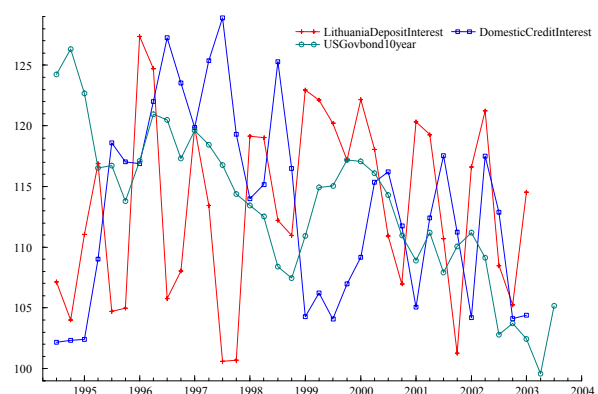


Figure 17. Comparison of the Lithuanian proxy interest rates and the US 10-year government bond interest rate.

By arguing that the proxy variables are the most relevant opportunity cost of capital for Estonia and Latvia but the market determined interest rates for Lithuania, it is clear from the figures that real money, however defined, contributes a great deal to output in Estonia and Latvia

but not to the same degree in Lithuania. However, the contribution of real money to output in Lithuania is larger than those reported for the USA in Startz (1984) where it never exceeded 0,01. The output elasticity in Lithuania was only occasionally equal to but never below 0,01. Fur-

thermore, it was as high as 0,36 with the use of the money market rate and the M2 monetary aggregate. Thus, the results for the emerging Baltic States generally support the hypothesis outlined in McKinnon (1973) and Shaw (1973) that money is complementary to physical capital in developing countries and as such is a significant variable in determining economic growth also in the emerging Baltic States. However, the output elasticity of money decreases over time and with it the importance of money in the production process in line with that the Baltic economies and capital markets continually develops.

Conclusions and policy implications

By use of the approach proposed in Startz (1984), this paper evaluates the output elasticity of money in the emerging Baltic States. The results prove to be sensitive to the choice of the monetary aggregate in general and to the opportunity cost of capital in particular. The more narrow monetary aggregates produce less favourable results for money in the production process relative to broader aggregates. The different measures of the opportunity cost of capital implies significant differences in the results and therefore for the policy conclusions of the role of money in the production process. However, the results in this paper are only suggestive and should be interpreted with caution as the results does not represent concrete estimated empirical relationships and the common difficulties encountered with data from developing countries.

Related to the most relevant measure of the opportunity cost of capital, the role of money in the production process was related to the output elasticity calculated by use of the market determined interest rates in Lithuania and to the output elasticity calculated by use of the proxy variables for Estonia and Latvia. The output elasticity of money in Estonia and Latvia is considerably high implying that money contributes to the production process such that labour and physical capital can be used in a more efficient way to increase economic growth and the welfare of the country. For Lithuania, the economic growth process is not that dependent on money as a complement to physical capital but still considerably higher than the general case for the USA found in Stratz (1984). To improve the growth potential in Estonia and Latvia, the development of the capital markets should continue for a more efficient use of the different production factors in the production process. The development of the capital markets will further release capital and labour from the distribution and exchange process of goods and services and allowing them to be more efficiently used in the production of goods and services.

Furthermore, to increase the efficiency in the financial markets and enhance the economic growth potential, policies for financial stability as well as for price stability should be implemented. Increased financial stability will increase the credibility of the financial markets and the use of those markets in channelling financial capital in a more efficient way. Implementing price stability can enhance the growth potential as higher inflation can lead to lower demand for real money balances due to higher expected price levels as a consequence of increased uncertainty. Changes in the real money balances was proved to

significantly affect the output elasticity of money and since money is most likely complementary to physical capital the outcome would be detrimental to aggregate output. Those conclusions and policy recommendations should be implemented with caution for Lithuania where the role of money in the production process seems to be less clear. As the proxy variables for the opportunity cost of capital only take the supply-side but not the demand-side into consideration, a proxy variable that incorporates the demand-side as well might render enhanced information on the role of money in Lithuania.

The result implies that changes in the real money stock appear to have impacted output in the Baltic States directly through the aggregate supply channel rather than through aggregate demand. Thus, an aggregate production function for Lithuania in general and Estonia and Latvia in particular should therefore include real money balances as an input factor such that the aggregate production function will not suffer from a specification bias.

Further research concerning the role of money in the production function on a disaggregated firm-level includes analyses of the accessibility to real money balances as a constraint in the production process and, on the aggregate level, the more exact statistical relationship between real money and output.

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Kai kurie pasvarstymai apie pinigų ir ekonomikos augimą Baltijos valstybėse

Santrauka

Neoklasikiniu požiūriu, realių pinigų atsargos yra svarus indėlis bendrame gamybos procese, nes pinigai yra glaudžiai susiję su šiuo procesu. Ši priklausomybė atsispindi pinigų augimo modelyje (Friedman, 1969; Stein, 1970), kuriame pinigai laikomi esminiu indėliu. Pirmieji darbai (Sinai ir Stokes, 1972), susiję su pinigų vaidmeniu gamyboje, rodo jų svarbą JAV patyrimo. Tolimesni tyrimai (Short, 1979; Simos, 1981; Sinai ir Stokes, 1989) remia šiuos teiginius, tačiau yra autorių (Niccoli, 1975; Prais, 1975; Nguyen, 1986) nesutinkančių su kai kuriais rezultatais. Kai kurie mokslininkai (Sinai ir Stokes, 1972; Evans ir kiti, 2002) įrodo, kad finansinis vystymasis yra toks pat svarbus kaip ir žmogiškasis kapitalas visame vystymosi procese. Nekreipiant dėmesio į pinigų ir bendro augimo priklausomybę, galima pasiekti klaidinančių rezultatų. Allen ir kiti (2005) taip pat pabrėžia alternatyvių finansavimo šaltinių ir jų valdymo mechanizmų svarbą.

Tyrimai pinigų ir ekonomikos augimo priklausomybės srityje buvo atlikti remiantis besivystančių ir išsivysčiusių šalių patyrimu, tačiau neatkreipta dėmesio į naujos kylančios ekonomikos patyrimą. Šis straipsnis remiasi Stratz'o (1984) tyrimo rezultatais ir nagrinėja pinigų vaidmenį bendrame gamybos procese Baltijos valstybėse. Straipsnyje kalbama apie pinigų vaidmenį gamyboje, susijusioje su rinkos pokyčiais. Pagrindinis tikslas yra įvertinti pokyčių svarbą bendruose pinigų ir ekonomikos vystymosi procesuose. Straipsnis

susideda iš teorinio pagrindimo ir empirinių tyrimų rezultatų analizės bei išvadų apie tam tikros politikos kūrimą šioje srityje.

Pinigų elastingumas Baltijos šalyse ir bendri finansinio vystymosi duomenys panaudoti iš atitinkamų šaltinių (EcoWin, International Financial Statistics). Bendras pinigų kiekis, vartojamas Estijoje ir Latvijoje, sudaro pinigų pagrindą, Lietuvos atveju vartojami M1 ir M2. Realios pinigų sandaupos yra paremtos kiekvienos šalies kainų indeksu.

Finansinės ir kapitalo rinkos Baltijos valstybėse nuolat vystėsi per visą šį laikotarpį, bet abejonių kyla dėl palūkanų indekso panaudojimo. Todėl alternatyvių galimybių kapitalo kaštai vartojami kartu su rinkos apibrėžtais palūkanų dydžiais. Šiuo požiūriu skiriasi Estijos, Latvijos ir Lietuvos tyrimo sudedamosios dalys.

Realių pinigų elastingumas Baltijos valstybėse paprastai viršija Startz (1984) pateiktus rezultatus, nes realių pinigų elastingumas JAV niekada neviršija 0,01. Elastingumas skiriasi įvairiose ekonomikose, tačiau kai kurių kintamųjų skirtumas yra ypač ryškus. Kapitalo kaštų galimybės pasirinkimas yra lemiamas veiksnys elastingumo amplitudei nustatyti. Tai svarbu ir kuriant Baltijos šalių pinigų augimo politiką ir nustatant jos įtaką gamybos procesų vystymuisi.

Patikimiausias pinigų elastingumo rodiklis Estijoje ir Latvijoje yra kapitalo kaštų galimybių kintamieji duomenys, tuo tarpu Lietuvoje yra rinkos apibrėžtas palūkanų kursas. Tokiu atveju pinigų vaidmuo gamybos procese yra susijęs su elastingumu, kuris apskaičiuojamas skirtingai kiekvienos ekonominės sistemos atžvilgiu. Aišku, kad realūs pinigai turi didelę įtaką Latvijoje ir Estijoje, tačiau jų svarba skiriasi Lietuvoje. Realių pinigų indėlis į Lietuvos produkciją yra didesnis nei JAV, kaip kad nurodė Startz (1984). JAV šis rodiklis niekada neviršijo 0,01. Išleidimo elastingumas Lietuvoje tik kartais būdavo lygus, bet niekada nebuvo žemesnis nei 0,01. Jis buvo 0,36 panaudojus pinigų rinkos kursą ir M2. Baltijos šalims dažnai tinka McKinnon (1973) ir Shaw (1973) hipotezė, teigianti, kad pinigai yra priedas prie fizinio kapitalo besivystančiose šalyse ir yra žymus kintamasis dydis nustatant ekonominį augimą. Pinigų išleidimo elastingumas ilgainiui mažėja, kai pinigai tampa ypač svarbūs gamybos procese, o Baltijos šalių ekonomikos ir kapitalo rinkos nuolat vystosi.

Tyrimo rezultatai rodo, jog pinigų išleidimo elastingumas Estijoje ir Latvijoje yra gana aukštas, o pinigų įtaka gamybos procesuose yra ryški, todėl darbas ir fizinis kapitalas gali būti labai našiai panaudoti keliant ekonomines šalių galias, ypač kaip priedas prie fizinio kapitalo.

Straipsnis pateikia duomenų apie Estijos, Latvijos ir Lietuvos piniginių galimybių bei ekonomikos vystymosi priklausomybę. Tyrimo rezultatai liudija, kad esama priklausomybės tarp piniginių galimybių pasirinkimo ir kapitalo kaštų, kur pinigų vaidmuo nėra toks svarbus. Užtikrinant ekonominį augimą, ekonominės politikos kūrėjai neturi trukdyti pinigų ir finansinių rinkų vystymuisi. Augimo potencialui Estijoje ir Latvijoje įtakos turi kapitalo rinkos, todėl šį vystymąsi reikia skatinti ir ieškoti efektyvių gamybos veiksmų panaudojimo galimybių. Kapitalo rinkų plėtimas dar labiau išlaisvins kapitalą ir darbą nuo prekių ir paslaugų paskirstymo procesų. Be to, tai leis efektyviau panaudoti šiuos veiksmus būtent prekių gamyboje ir aptarnavimo sferoje. Padidėjęs finansinis stabilumas padės vystyti finansines rinkas ir panaudoti jas finansinių galių plėtimo tikslams. Kainų pastovumo įgyvendinimas sustiprins augimo potencialą ir apsaugos nuo ekonominių netikėtumų.

Pasikeitimai realių pinigų balanse ryškiai veikia pinigų elastingumą. Straipsnyje pateiktos išvados ir rekomendacijos turėtų būti atsargiai taikomos Lietuvos finansinių galimybių plėtimui, nes pinigų vaidmuo Lietuvos gamybiniuose procesuose nėra visiškai aiškus. Tiek Lietuvos, tiek Estijos ir Latvijos atvejais realių pinigų balansai turi būti suvedami taip, kad galutinis rezultatas nenukentėtų nuo specifinio ekonomikos vystymosi.

Raktažodžiai: *Baltijos šalys, ekonominis augimas, elastingumas, pinigų klasifikacija: E51, E32.*

The language of the article is not edited

The article has been reviewed

Received in October, 2006; accepted in December, 2006.