Managing Global Transitions

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Impacts of Government Debt, the Exchange Rate and Other Macroeconomic Variables on Aggregate Output in Croatia

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Applying aggregate demand/aggregate supply analysis and based on a quarterly sample during 2000.Q4–2015.Q4, this paper finds that Croatia's aggregate output is positively associated with government debt as percent of GDP during 2000.Q4–2008.Q4, real appreciation of the kuna, the real stock price, German real GDP, the real oil price and real wages and negatively influenced by government debt as percent of GDP during 2009.Q1–2015.Q4, the real lending rate and the expected inflation rate. The dynamic relationships between real GDP and government debt as percent of GDP suggest that fiscal discipline needs to be exercised in pursuing expansionary macroeconomic policy in the future.

Key Words: exchange rates, government debt, stock prices, oil prices, real wages
JEL Classification: F31, E62

Introduction

Croatia's economy shows strengths and weaknesses. Employment grew 2.06% from 1.552 million in 2014.Q4 to 1.584 million in 2015.Q4. The inflation rate of −0.3% in 2015 preserved the value of the kuna and consumer buying power. Recent depreciation of the kuna from a low of 4.65 kuna per US dollar in 2008.Q2 to 6.96 kuna per US dollar in 2015.Q4 is expected to stimulate exports but raise import costs. Improved international trade was evidenced by a trade surplus of 24,843.5 million kuna in 2015.Q3, suggesting that Croatia's export sector became more competitive globally. The economic growth rate of 1.6% in 2015 was slightly lower than the average growth rate of 2.0% in the European Union. The central government debt as percent of GDP rose from a recent low of 34.2% in 2008.Q3 to 85.1% in 2015.Q4, which was greater than the 60% Maastricht criterion. The rapid rise in the government debt as percent of GDP is expected to raise the long-term interest rate and crowd out private spending. The long-term government bond yield of 3.92% in 2015.M12 was

higher than the EU average of 1.47%. The unemployment rate of 16.3% in 2015 was higher than the average unemployment rate of 9.4% in the European Union, suggesting that there was labor market slack (The Croatian National Bank, Eurostat, International Financial Statistics). The International Monetary Fund (2016) provides an assessment of Croatia's economic performance and macroeconomic policy.

This paper examines the impacts of government debt, real depreciation and other relevant macroeconomic variables on aggregate output in Croatia. To the author's best knowledge, few of the previous studies have applied the aggregate demand and aggregate supply model to examine the relationships between aggregate output and relevant macroeconomic variables. Other relevant macroeconomic variables such as the real interest rate, the real stock price, the real oil price, real wages, etc. will be considered in the model as well.

The Model

Suppose that aggregate demand in the Croatia is determined by the inflation rate, government spending, government tax revenue, the real interest rate, the real stock price, foreign income and the real effective exchange rate and that short-run aggregate supply is a function of the inflation rate, real wages, the real oil price and the expected inflation rate. We can express the aggregate demand and short-run aggregate supply functions as:

$$Y^d = w(\pi, G, T, R, S, Y^f, \varepsilon), \tag{1}$$

$$y^s = z(\pi, W, E, \pi^e), \tag{2}$$

where Y^d is aggregate demand, π is the inflation rate, G is government spending, T is government tax revenue, R is the real interest rate, S is the real stock price, Y^f is foreign income, ε is the real effective exchange rate, Y^s is short-run aggregate supply, W are real wages, E is the real oil price, and π^e is the expected inflation rate.

In equilibrium, $Y^d = Y^s$. Solving for the two endogenous variables, Y and π, we have the equilibrium real GDP:

$$\overline{Y} = f(G - T, \varepsilon, R, S, Y^f, E, W, \pi^e). \tag{3}$$

Because government debt is an accumulation of the government deficit and is a more concerned subject, we replace the government deficit ($G - T$) with government debt (D):

$$\overline{Y} = h(D, \varepsilon, R, S, Y^f, E, W, \pi^e)$$
$$\quad ? \ ? \ - \ + + \ ? \ ? \ -. \tag{4}$$

We expect that real GDP has a positive relationship with the real stock price and foreign income and a negative relationship with the real interest rate and the expected inflation rate.

Empirical studies on the impact of the government deficit/debt on real output are inconclusive. The Ricardian equivalence hypothesis (Barro 1974; 1989) suggests that debt- or deficit-financed government spending has a neutral effect in the long run. Feldstein (1976), Hoelscher (1986), Cebula (1997), Cebula and Cuellar (2010), Cebula (2014a; 2014b), Cebula, Angjellari-Dajci, and Foley (2014) and others maintain that more government deficit/debt raises real interest rates and tends to crowd out spending by households and businesses. However, studies by McMillin (1986), Gupta (1989), Darrat (1989; 1990), Findlay (1990), Ostrosky (1990) and others argue that more government deficit/debt would not raise the interest rate.

Whether real exchange rate depreciation would increase or reduce aggregate output has been investigated extensively. Real depreciation tends to make domestic-made goods and services cheaper and more competitive globally, increase exports, and shift aggregate demand upward. On the other hand, real depreciation tends to make imports more costly, raise domestic inflation, and shift the short-run aggregate supply curve leftward. The net effect on aggregate output is uncertain depending upon model specifications, methodologies employed in empirical work, countries under study, sample periods, and other factors (Bahmani-Oskooee and Miteza 2003).

In studying selected transition economies in the Central or Eastern European countries, Mitchell and Pentecost (2001) show that devaluations are contractionary in the short run and long run. Mills and Pentecost (2001) reveal that real appreciation may have a positive, negative or neutral impact on output in different countries in the long run. Miteza (2006) reports that devaluations are contractionary in the long run. Bahmani-Oskooee and Kutan (2008) find that real depreciation may be expansionary, contractionary or neutral in different countries in the short run and has no long-term effect on output.

A higher real crude oil price due to a negative supply shock would shift the short-run aggregate supply curve to the left. On the other hand, if a higher real crude oil price is caused by a demand shock, it would shift the

aggregate demand curve to the right. Hence, the net impact is uncertain (Hamilton 1996; Kilian 2008a; 2008b).

Rising real wages increase the production cost, shift the short-run aggregate supply curve to the left, and reduce the equilibrium real GDP. On the other hand, rising real wages tend to increase labor productivity, personal consumption spending, and shift the short-run aggregate supply and aggregate demand curves to the right. Hence, the net impact is unclear (Mills and Pentecost 2001; Miteza 2006; Narayan and Smyth 2009; Spencer 2015).

Empirical Results

The data were collected from IMF's International Financial Statistics, the Croatian National Bank, and the Eurostat by the European Commission and. Real GDP is measured in million kuna. The real effective exchange rate is derived from the consumer price index. An increase in the real effective exchange rate means real appreciation, and vice versa. Central government debt is expressed as percent of GDP. The real lending rate is the difference between the nominal lending rate and the expected inflation rate. The real stock price is calculated as the equity price adjusted for the consumer price index. Real wages are average monthly net wages measured in the kuna adjusted for the consumer price index. The real oil price is the average crude oil price measured in the kuna and adjusted for the CPI. The expected inflation rate is estimated as the average inflation rate of the past four quarters. Except for the real lending rate, the expected inflate rate and the binary variable, other variables are measured on a log scale. The sample ranges from 2000.Q4 to 2015.Q4. The data for central government debt as percent of GDP are not available before 2000.Q4.

An analysis of the data (figure 1) shows that the relationship between real GDP and government debt as percent of GDP seem to exhibit a slightly positive relationship during 2000.Q4–2008.Q4 and a negative relationship during 2009.Q1–2015.Q4. Hence, a binary variable is created with a value of one during 2009.Q1–2015.Q4 and zero otherwise. An interactive term and an intercept binary variable are added to the estimated regression. Figure 2 reveals that the relationship between real GDP and the real effective exchange rate seem to exhibit a positive relationship during the sample period.

The ADF test on the regression residuals is applied to determine whether these time series variables are cointegrated. In the test equation with a trend and an intercept, the value of the test statistic is estimated to be
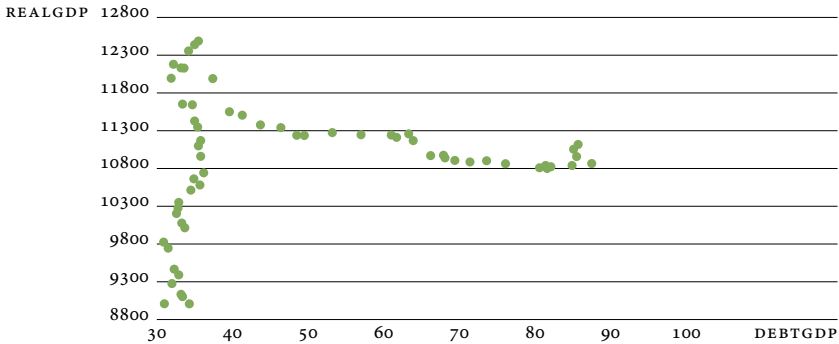
FIGURE 1   Scatter Diagram between Real GDP (REALGDP) and the Government
            Debt/GDP Ratio (DEBTGDP)
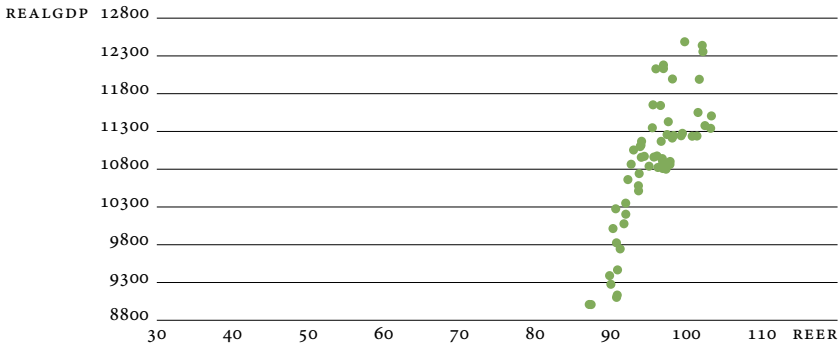
FIGURE 2   Scatter Diagram between Real GDP (REALGDP) and the Real Effective
            Exchange Rate (REER)

−5.5409, which is greater than the critical value of −4.1184 at the 1% level
in absolute values. Therefore, these time series variables have a long-term
stable relationship.

Table 1 presents the estimated regression and relevant statistics. The
GARCH method is employed to estimate the variance equation and re-
gression parameters. The ten right-hand side variables can explain ap-
proximately 96.44% of the variation in Croatia's real GDP. All the es-
timated coefficients are significant at the 1% level. Real GDP in Croa-
tia has a positive relationship with real appreciation of the kuna, gov-
ernment debt as a percent of GDP during 2000.Q4–2008.Q4, the real
stock price, German real GDP, the real oil price and real wages and a
negative relationship with government debt as a percent of GDP during
2009.Q1–2015.Q4, the real lending rate and the expected inflation rate.
The reason for the positive relationship between real GDP and govern-

TABLE 1   Estimated Regression of Log(Real GDP) in Croatia

Variable	Coefficient	z-Statistic
Intercept	1.315085	1.260485
Log(government debt/GDP ratio)	0.278429	2.434923
Log(government debt/GDP ratio) × binary variable	−0.459831	−3.999393
Binary variable	1.699925	4.145467
Log(real effective exchange rate)	0.262907	2.112595
Real lending rate	−0.019608	−4.163282
Log(real stock price)	0.090499	5.281643
Log(German real GDP)	0.388291	4.833830
Log(real oil price)	0.012917	1.024101
Log(real wages)	0.032462	0.977410
Expected inflation rate	−0.021758	−4.181163
R-squared		0.964421
Adjusted R-squared		0.957305
Akaike information criterion		−5.528989
Schwarz criterion		−5.079131
Mean absolute percent error		1.134225%
Sample period		2000.Q4–2015.Q4
Number of observations		61
Methodology		GARCH

NOTES   The binary variable has a value of one during 2009.Q1–2015.Q4 and zero otherwise. All the coefficients are significant at the 1% level.

ment debt as a percent of GDP during 2000.Q4–2008.Q4 is that a relatively low government debt as a percent of GDP raises aggregate expenditure, increases real GDP through the multiplier effect, and is less likely to increase the real interest rate and cause a crowding-out effect. The cause for the negative relationship after 2008.Q4 is that a relatively high government debt as a percent of GDP tends to raise the real interest rate, cause a negative crowding-out effect to be greater than a positive effect due to debt-financed government spending, and reduce real GDP (Cebula 2014a; 2014b).

In percent terms and absolute values, the real effective exchange rate has the largest impact. The relatively low mean absolute percent error of 1.1342% suggests that the estimated regression performs relatively well in forecasting. Specifically, a 1% increase in government debt as percent of

GDP would increase real GDP by 0.2784% during 2000.Q4–2008.Q4 and reduce real GDP by 0.1814% during 2009.Q1–2015.Q4. A 1% real appreciation of the kuna would cause real GDP to rise by 0.2629%. If German real GDP rises 1%, Croatia's real GDP would increase by 0.3883%.

The negative relationship of government debt as percent of GDP during 2009.Q1–2015.Q4 suggests that recent rapid rise of debt-financed government spending would be harmful to economic growth. The positive significant coefficient of the real effective exchange rate implies that recent real depreciation of the kuna would reduce Croatia's aggregate output. The positive significant coefficient of the real stock price shows that an increase in real stock values would raise household wealth, household consumption spending, and real GDP. The positive significant coefficient of the real oil price shows that the demand-driven effect is greater than the supply-driven effect.

Several other explanatory variables are considered. When US real GDP is used to represent foreign income, its positive coefficient of 0.8721 is significant at the 1% level and greater than the coefficient of 0.3883 when German real GDP is used in table 1. However, the positive coefficients of government debt as percent of GDP and the real oil price become insignificant at the 10% level due to a high degree of multicollinearity. When government deficit as percent of GDP replaces government debt as percent of GDP, its negative coefficient is insignificant at the 10% level. Thus, the choice of a variable representing fiscal policy may yield different conclusions.

Summary and Conclusions

This paper has examined the effects of government debt as percent of GDP, real depreciation, and other relevant macroeconomic variables on Croatia's aggregate output based on aggregate demand/aggregate supply analysis. A reduced form equation is estimated. Real GDP and government debt as a percent of GDP exhibit a positive relationship during 2000.Q4–2008.Q4 and a positive relationship after 2008.Q4. In addition, real appreciation of the kuna, a lower real lending rate, a higher real stock price, a higher foreign income, a higher real oil price, a higher real wage or a lower expected inflation rate would increase real GDP.

There are policy implications. To promote economic growth, Croatia needs to continue to engage in fiscal prudence, pursue real appreciation of the kuna, hold the real interest rate low, maintain a healthy financial and stock market, raise workers' real wages, and reduce inflation expectations.

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The Growth Trade-off between Direct and Indirect Taxes in South Africa: Evidence from a STR Model

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The tax system forms the backbone to the functioning of the South African fiscal authorities and it is has been recently questioned whether alterations in the existing tax mix could promote economic growth. Using quarterly data from 1990:Q1 and 2015:Q2, this study investigated the effects of direct and indirect taxes on economic growth for South Africa using the recently developed smooth transition regression (STR) model. Our findings suggest an optimal tax of 10.27 percent on the indirect tax-growth ratio, of which below this rate indirect taxes are positively related with economic growth whereas direct taxes are negatively related with growth. Above the optimal tax rate, taxation bears no significant relationship with economic growth. We therefore suggest that policymakers place a greater burden on indirect taxes and yet ensure that the contribution of indirect taxes to economic growth does not exceed the threshold of 10.27 percent.

Key Words: direct taxes, value-added tax (VAT), optimal tax, economic growth, South Africa, smooth transition regression (STR) model
JEL Classification: C22, C51, H21, H30, O4

Introduction

In wake of the global financial crisis of 2007–2009, most economies worldwide are in their recovery phases in the aftermath following the collapse of the US financial system. The global financial crisis took a major toll on key macroeconomic performance indices in countries across the globe with South Africa bearing no exception to this rule. In attempts to boost economic growth, policymakers worldwide are focusing on tax reform policy as a vehicle towards attaining this goal. For the specific case of South Africa, speculation has run high concerning the intentions of fiscal authorities to increase government expenditure by shifting the burden from direct taxes (i.e. personal income and corporate taxes) to indirect taxes (i.e. value added tax (VAT) and other consumption taxes such as goods and services tax (GST), excise duties and custom duties).

Apparently this tax reform policy comes recommended by the Davis Tax Committee and so far, these reforms have been advocated for based on two primary arguments. Firstly, it is contended that the current structure of the tax system in the country cannot foster higher economy growth due to heavy reliance on corporate and income taxes. In other words, if policymakers were to continue relying on direct taxes for purposes of increasing government revenue, then such tax increases would exert adverse effects on economic growth. Secondly, by increasing indirect taxes, less tax burden will be borne by individuals and corporations thus creating a conducive climate for domestic savings and foreign investments in the country.

Given the relative importance which tax policy plays towards economic development, a number studies have taken the initiative of investigating the trade-off effects of taxes on economic growth for South Africa. To the best of our knowledge, there have been four case studies conducted thus far for South Africa and these are the works of De Wet, Schoeman, and Koch (2005), Koch, Schoeman, and Van Tonder (2005), Schoeman and van Heerden (2009) and Saibu (2015). Collectively, these studies rely on a wide range of econometric methods applied to empirical data. For instance, De Wet, Schoeman, and Koch (2005) estimate an augmented neo-classical growth model using OLS estimators; Koch, Schoeman, and Van Tonder (2005) use a two-stage Data Envelopment Analysis (DEA) to estimate an augmented neo-classical growth model; whereas Schoeman and van Heerden (2009) and Saibu (2015) make use of OLS in estimating Scully's (1996; 2000) tax-optimizing model. Overall, the consensus drawn over these studies points to a negative tax-growth relationship for the South African economy. Whilst these studies provide a good basis for investigating the tax-growth relationship in South Africa, we observe that the authors' use of linear estimation in their empirical analysis leaves the studies prone to criticisms of not addressing possible nonlinear relations existing between the time series variables. This is a cause for genuine concern given the increasing amount of evidence in the literature in support of nonlinear dynamic structure of macroeconomic data (Dackehag and Hansson 2012; Stoilova and Patonov 2013; Nantob 2014; Hunady and Orviska 2015). These nonlinear studies generally imply that the conventional linear models are misspecified. Moreover, the time span covered by previous South African studies encompasses a number of important political events and tax policy reforms, which furthers the case for possible nonlinear relationships between time series of economic variables.

In our study, we contribute to the literature by modelling nonlinear trade-off effects of direct and indirect taxes on economic growth for South African using quarterly data collected between 1990:Q1 and 2015:Q2. Theoretically, we follow in pursuit of De Wet, Schoeman, and Koch (2005) who augment Feder's (1983) two-sector production function into a steady-state growth estimation equation. Empirically, we rely on the newly developed smooth transition regression (STR) framework in order to model out the nonlinear trade-off effects of direct and indirect taxes on economic growth. Given the wide range of available nonlinear econometric models in the literature, we consider the STR model as being most appropriate for the following reasons. Firstly, the STR model encompasses other competing nonlinear econometric models such as the threshold autoregressive (TAR), the Exponential Autoregressive (EAR) and the Markov-Switching (MS) models, which are models that can be derived as extremities of the STR regression. Secondly, the STR model assumes a smooth transition between regime coefficients which is a feature of the econometric model which makes it theoretically appealing. Lastly, the STR model allows the econometrician to choose both the appropriate switching variable and the type of transition function unlike other regime-switching econometric models (Phiri 2016).

Against this backdrop, we structure the remainder of the article as follows. The literature review is presented in the next section of the paper. In the third section we outline the methodology used in the study whereas the data and empirical results are given in the fourth section. We conclude the study in the form of policy implications and possible avenues for future work.

Literature Review

For simplicity sake, the current available literature on the tax-growth nexus can be broadly segregated into two main strands of empirical works. First and foremost are those panel data studies which make use of log-linear estimates of augmented transformations of Solow's (1965) neoclassical and Lucas's (1988) endogenous growth models. Prominent examples of pioneers belonging to this cluster of studies include Kormendi and Meguire (1985), King and Rebelo (1990) and Barro (1990) who all set path for a wave of other empirical studies which also relied on cross-sectional data for empirical use. For a greater part of it, these earlier panel data studies reveal an inverse tax-growth relationship (Engen and Skinner 1992; Wright 1996; Lee and Gordon 2005; Folster and Henrekson

2001; Romero-Avila and Strauch 2008), even though some exceptional studies showed a positive relationship (Koester and Kormendi 1989; Devaranjan, Swaroop, and Zou (1996) and Agell, Ohlsson, and Thoursie 2006) and a couple of other papers have found no significant relationship between the variables (Levine and Renelt 1992; Easterly and Rebelo 1993; Mendoza, Razin, and Taser 1994).

A major criticism of the aforementioned studies lies in their inability to efficiently account for cross-country differences in their empirical analysis. A perceptible demonstration of this inefficiency is found for the US economy where the panel data studies of Koester and Kormendi (1989) and Devaranjan, Swaroop, and Zou (1996) advocate for a positive correlation between tax and growth for panel data inclusive of US data whereas the single case studies of Mertens and Ravn (2013), Barro and Redlick (2011) and Romer and Romer (2010) all find a negative tax-growth relationship for the same country. Another issue which can be raised concerns the failure of these studies to differentiate between distortionary and non-distortionary taxes. As is discussed in Karagianni, Pempetzoglou, and Saraidaris (2013), differentiating between distortionary and non-distortionary forms of taxation is important because the use of average tax rates is an inappropriate tax indicator due to it is strong correlation with public spending. To circumvent this issue, researchers have opted to use a 'tax structure mix' as a means of measuring the effect of tax policy on economic growth. This tax structure mix is combination of both direct and indirect taxes which is used in the estimation of growth equations.

So far the consensus drawn from the literature is that corporate, income and other forms of direct taxes are more distortionary towards economic growth whereas indirect taxes, such as VAT, are either positively correlated or uncorrelated with growth (Skinner 1987; Lee and Gordon 2005; Arnold 2008; Widmalm 2009; Dackehag and Hansson 2012; Bujang, Hakim, and Ahmad 2013).

The second identifiable strand of empirical works in the literature vouch for a nonlinear relationship between taxes and economic growth and this group of studies can be further sub-divided into two groups. The first sub-group of studies are those who followed in pursuit of a series of articles written by Scully (1995; 1996; 2000; 2003) who developed both theoretical and empirical specification for computing the optimal tax rate which results in growth maximization. Belonging to this sub-group of studies are the works Chao and Grubel (1998), Hill (2008), Keho (2010),

Schoeman and van Heerden (2009) and Saibu (2015). We note that Chao and Grubel (1998) estimate an optimal tax rate of 34 percent for Canadian data. On the other hand, Hill (2008) estimates optimal tax rates ranging from 9 percent to 29 percent of GDP across different states in the US. Meanwhile, Keho (2010) estimates an optimal tax rate of 22.3 percent for Ivory Coast using data collected between 1960 and 2006 whereas Saibu (2015) estimates optimal tax rates for Nigerian as well as for South Africa for data collected between 1964 and 2012. For the former country the optimal rate is found to be 30 percent whereas for the later the optimal rate is 15 percent. However, using data collected from 1960 to 2006, Schoeman and van Heerden (2009) find an optimal tax rate of 21.94 percent for South Africa. What is important to note is that the optimal tax rates documented in the literature differ, not only across different countries, but also for the same country as can be witnessed in the study of Schoeman and van Heerden (2009) in comparison to that of Saibu (2015) for the case of South Africa. Nevertheless, this particular sub-group of studies remains relevant to literature seeing that they can be used to guide policymakers in amending discrepancies between the current or prevailing tax-growth ratio and the estimated optimal tax-growth rate.

And even with the progressive nature of these studies in capturing the optimal level of tax, the underlying empirical model has been further deemed as being flawed on account of using a functional form which produces spurious estimates of the optimal level of tax (Hill 2008; Kennedy 2000). This flaw lead to the emergence to the second sub-group of nonlinear studies who empirically capture nonlinearity in the tax-growth relationship by employing two measures of government tax in their growth equations, namely the ratio of tax returns to GDP as well as the square of tax returns expressed as ratio of GDP. The former term is intended to measure the tax-growth relationship at low tax levels whereas the later term measures this relationship at high tax levels. Notably, under this method of capturing nonlinearities in the tax-growth relationship, a specific optimal tax rate cannot be identified. Studies which have used to this method to quantify nonlinearities in the tax-growth relationship include Dackehag and Hansson (2012), Stoilova and Patonov (2013), Nantob (2014), and Hunady and Orviska (2015). On one hand, the studies of Dackehag and Hansson (2012) and Nantob (2014) show that low levels of tax are positively correlated with economic growth whilst high levels of tax exert negative effects on growth. On the other hand, the study of Stoilova and Patonov (2013) find that low tax rates hamper economic

growth whereas high levels of taxation are beneficial towards growth. Once again, the inconclusiveness of the empirical studies is demonstrated and thus warrants further deliberation into the subject.

Empirical Framework

Of recent, a growing number of sophisticated nonlinear econometric models have been introduced into the academic literature. Among these models, is the smooth transition regression (STR) model as introduced by Luukkonen, Saikkonen, and Terasvirta (1988) and modified by Terasvirta (1994). In comparison to other competing state-dependent non-linear time series models such as the threshold autoregressive (TAR), Exponential Autoregressive (EAR) and the Markov Switching (MS) models, the STR model holds a high level of appeal because unlike these other nonlinear models the transition between regime states is endogenously determined. Furthermore, the STR encompasses these other nonlinear econometric models. In its baseline form, the STR model can be formulated as follows:

$$y_t = \beta_o' x_t + \beta_1' x_t G(z_t; \gamma, c) + \varepsilon_t \qquad \varepsilon_t \, iid \, N(o, h_t^2), \tag{1}$$

where y_t is a scalar, β_o' and β_1' are parameter vectors; x_t represents the vector of explanatory variables, c is the transition variable, γ is the threshold estimate and $G(z_t; \gamma, c)$ is a transition function which assumes the following logistic function:

$$G(z_t; \gamma, c) = \frac{1}{1 + \exp\left\{-\gamma \prod_{k=1}^{k} (z_t - c_k)\right\}}, \tag{2}$$

where z_t is the transition or threshold variable whereas γ and c are the true threshold estimate and the transition parameter, respectively. For empirical purposes we restrict the STR model to the cases for $k = 1$ (LSTR-1) and $k = 2$ (LSTR-2). In firstly testing for linearity in equation (1), we impose the constraint $H_o': \beta_1 = o$ on the regression. However, since the LSTR model contains unidentified nuisance parameters under the null hypothesis of linearity, conventional tests will produce nonstandard distributions (Davies 1977). As suggested by Luukkonen, Saikkonen, and Terasvirta (1998), one method of circumventing this problem, involves replacing the transition function $G(z_t; \gamma, c)$ by its first order Taylor expansion around $\gamma = o$, which results in the following auxiliary function:

$$y_t = \mu_t + \beta_o'^* x_t + \beta_1'^* x_t z_t + \beta_2'^* x_t z_t^2 + \beta_3'^* x_t z_t^3 + \varepsilon_t^*, \tag{3}$$

where the parameter vectors β_1^*, β_2^*, β_3^* are multiples of γ and $\varepsilon_t^* = \varepsilon_t + R_3 \beta_1' x_t$, with R_3 being the remnant portion of the Taylor expansion. Hereafter, the null hypothesis of linearity is tested as $H_0 : \beta_1 = \beta_2 = \beta_3 = 0$ and this may be tested via an LM test such that the Taylor series does not affect asymptotic distribution theory. Once the null hypothesis of linearity is rejected, one must decide on whether to fit an LSTR-1 or LSTR-2 model to the data. Terasvirta (1994) suggests using a decision rule based upon a sequence of tests in equation (3). Particularly, the author proposes testing the following null hypotheses:

$$ \text{I.} \qquad H_{04}^* : \beta_3^* = 0 $$

$$ \text{II.} \qquad H_{03}^* : \beta_2^* = 0 | \beta_3^* = 0 $$

$$ \text{III.} \qquad H_{02}^* : \beta_1^* = 0 | \beta_3^* = \beta_2^* = 0. \qquad (4) $$

The decision rule for selecting either a LSTR-1 or LSTR-2 model is thus as follows. Select a LSTR-2 specification if H_{02}^* has the strongest rejection, otherwise, we select the LSTR-1 specification. Once an appropriate LSTR specification has been chosen, the next step in the modelling process is to obtain initial values for estimation purposes and these are obtained by performing a grid search with a log-linear grid in γ and a linear grid in c. The starting values are those which minimize the residual sum of squares (RSS) over the grid search and thereafter the STR parameters are estimated by a nonlinear optimization routine that maximizes the log-likelihood.

In turning to our theoretical model, we follow in pursuit of De Wet, Schoeman, and Koch (2005) who present an augmentation of Feder's (1983) two-sector production function model for empirical purposes. In particular, the authors exploit the possibility of government sector impacting economic growth through two channels namely; through revenue collections and through efficient allocation of resources. Their empirical growth model is specified as:

$$ \frac{\dot{Y}}{Y} = \theta_1 \left[\frac{I}{Y} \right] + \theta_2 \left[\frac{\dot{L}}{L} \right] + \theta_3 \left[\frac{\dot{T}_d}{T} \right] + \theta_4 \left[\frac{\dot{T}_{id}}{T} \right] + \left[\left(\frac{\delta}{1+\delta} \right) - \theta_3 \right] \left[\frac{\dot{T}_d}{T} \right] $$

$$ + \left[\left(\frac{\delta}{1+\delta} \right) - \theta_4 \right] \left[\frac{\dot{T}_{id}}{T} \right] + \varepsilon_t, \qquad (5) $$

where $\dot{Y}/Y$ measures output growth (GDP), I/Y measures the ratio of fixed capital formation to GDP, $\dot{L}/L$ measures the growth in the labour force, $\dot{T}_d/T$ measures the growth in direct tax as a ratio of total taxes,

$\dot{T}_{id}/T$ measures the growth rate in indirect tax as a ratio of total taxes, $\dot{T}_{d}/Y$ measures the growth of direct taxes as a share of total income, and $\dot{T}_{id}/Y$ measures the growth of indirect taxes as a share of total income.

The coefficients θ_1, θ_2, θ_3 and θ_4, measure the effects of investment on economic growth, labour on economic growth, direct taxes on economic growth and indirect taxes on economic growth, respectively. On the other hand, the coefficient $[(\delta/(1+\delta)) - \theta_3]$ is an efficiency measures between direct taxes and the real economy, whereas the coefficient $[(\delta/(1+\delta)) - \theta_4]$ is an efficiency measure between indirect taxes and the real economy. If either $[(\delta/(1+\delta)) - \theta_3] > 0$ or $[(\delta/(1+\delta)) - \theta_3] > 0$ occurs, then resources collected by the public sector are used more efficiently by the government than the resources in the rest of the real sector (De Wet, Schoeman, and Koch 2005). The opposite is only possible if the coefficients θ_3 and θ_4 are of a greater absolute value than the coefficients $[(\delta/(1+\delta)) - \theta_3]$ and $[(\delta/(1+\delta)) - \theta_4]$. In referring back to equations (1) through (4), we can transform the linear growth regression (4) into the following STR estimation model:

$$
\begin{aligned}
\frac{\dot{Y}}{Y} = {} & \theta_1 \left[\frac{I}{Y}\right] + \theta_2 \left[\frac{\dot{L}}{L}\right] + \theta_3 \left[\frac{\dot{T}_d}{T}\right] + \theta_4 \left[\frac{\dot{T}_{id}}{T}\right] + \left[\left(\frac{\delta}{1+\delta}\right) - \theta_3\right]\left[\frac{\dot{T}_d}{T}\right] \\
& + \left[\left(\frac{\delta}{1+\delta}\right) - \theta_4\right]\left[\frac{\dot{T}_{id}}{T}\right] + \theta'_1 \left[\frac{I}{Y}\right] + \theta'_2 \left[\frac{\dot{L}}{L}\right] + \theta'_3 \left[\frac{\dot{T}_d}{T}\right] \\
& + \theta'_4 \left[\frac{\dot{T}_{id}}{T}\right] + \left[\left(\frac{\delta'}{1+\delta'}\right) - \theta'_3\right]\left[\frac{\dot{T}_d}{T}\right] + \left[\left(\frac{\delta'}{1+\delta'}\right) - \theta'_4\right]\left[\frac{\dot{T}_{id}}{T}\right] \\
& \times G(z_t; \gamma, c) + \varepsilon_t.
\end{aligned}
\tag{6}
$$

Having formulated our estimation model, we thus outline the modelling and estimation process of the formulated STR regression as follows. Firstly, we test linearity against the LSTR alternative by using each of the explanatory variables as a possible transition variable. Once linearity is rejected, we use the decision criteria to choose between LSTR-1 and LSTR-2 specification and choose the model with the highest rejection. Secondly, we carry out a three-dimensional grid search over the values of z_t, γ and c for the STR regression. The optimal values are the ones which minimize the residual sum of squares (RSS). Thirdly, we estimate the chosen model using a Newton-Raphson algorithm to maximize the conditional maximum likelihood function. Lastly, we perform diagnostic tests (i.e. ARCH effects, tests of no error autocorrelation and parameter consistency) on the estimated model.

TABLE 1   Summary of Time Series

SARB code	Description of time series
KBP6006S	Percentage change in gross domestic product ($\dot{Y}/Y$)
KBP6282L	Percentage change in ratio of gross fixed capital formation to GDP (I/Y)
KBP7008L	Total employment in private sector (L)
KBP459M	Total net national government tax revenue (T)
KBP4578M	National government tax revenue: taxes on goods and services – value added tax (T_{id})
KBP4578M	National government tax revenue: total taxes on income, profits and capital gains (T_d)
KBP6006L	Gross domestic product (millions) (Y)

NOTES   Adapted from the SARB online data base (https://www.resbank.co.za/Research/Statistics/Pages/OnlineDownloadFacility.aspx).

Data and Empirical Analysis

DATA AND UNIT ROOT TESTS

For empirical purposes, we collect all our data from the South African Reserve Bank (SARB) online database. Table 1 summarizes the raw time series as has been collected from the SARB database. Each of the time series has been collected on quarterly basis between the period of 1990:Q1 to 2015:Q2, that is with the exception of taxes on goods and services (VAT) and the taxes on income, profits and capital gains, which have been collected on a monthly basis from 1990:M1 to 2015:M6. Given the non-uniformity of the time series, we use cubic spline interpolation to convert the monthly data (i.e. taxes on goods and services (VAT) and the taxes on income, profits and capital gains) into quarterly data over the same sample period.

As a first step in our empirical analysis, we need to examine the time series variables for their integration properties. Given that the time series covers periods which are prone to structural breaks, it is advisable to test for unit roots using methods which account for structural breaks. Therefore, conventional unit root tests such as the Augmented Dickey Fuller (ADF) and Phillips and Perron (PP) tests are inappropriate for the study. We thus consider using the unit root tests of Zivot and Andrews (1992) with a structural break existing under the alternative hypothesis of a stationary time series process. The unit root tests are performed with (i) an intercept and (ii) with a trend and the optimal lag length of the tests is determined by the minimization of the AIC.

TABLE 2 Zivot and Andrews (1992) Unit Root Test

Time series	t-statistic			Breakpoint (year)		
	Intercept	Trend	Both	Intercept	Trend	Both
$\dot{Y}/Y$	-5.45^{***}	-4.85^{*}	-5.53^{***}	1990	1995	1990
I/Y	-8.19^{***}	-7.24^{***}	-8.52^{***}	1994	1995	1994
$\dot{L}/L$	-5.89^{***}	-2.11	-7.06^{***}	1994	1992	1994
$\dot{T}_d/T$	-5.59^{***}	-7.60^{***}	-7.57^{***}	1995	1994	1994
$\dot{T}_{id}/T$	-11.74^{***}	-11.40^{***}	-11.80^{***}	1991	1992	1991
$\dot{T}_d/Y$	-10.74^{***}	-10.85^{***}	-10.79^{***}	1998	1998	1998
$\dot{T}_{id}/Y$	11.61^{***}	-11.61^{***}	-11.37^{***}	1998	1998	1998

NOTES   Significance levels are given as follows: ***, **, and * represent the 1%, 5% and 10% significance levels respectively. The test statistics for first differences are reported in parentheses. The critical values for the Zivot and Andrews (1992) unit root tests inclusive of an intercept only are as follows: 1%: −5.34, 5%: −4.80 and 10%: −4.58; the critical values for the unit root test inclusive of a trend are as follows: 1%: −4.93, 5%: −4.42 and 10%: −4.11 whereas the critical values for the unit root test inclusive of a trend are as follows: 1%: −5.57, 5%: −5.08 and 10%: −4.82.

Based on the unit root test results reported in table 2, all observed time series, in their levels, reject the null hypothesis of a unit root regardless of whether the unit root test regression includes an intercept, a trend or both. An exception is warranted for the unit root tests performed with trend on the growth in labour force variable. However, this is merely an exceptional result than the norm. Another thing worth noting form the unit root test results reported in table 2 is that the various structural break points detected in the time series correspond to the political shift of South Africa towards a democratic economy as witnessed in 1994. Notably, the tax recommendations of the Katz commission where introduced and implemented during the period of 1994 to 1998 which saw significant changes in the personal income tax system. The detected structural breaks correspond to this period of tax reforms within the country. All-in-all, we conclude that all utilized time series appear to be stationary in their levels (i.e. integrated of order I(0)) and this satisfies a preliminary condition for estimating the STR model without the fear of obtaining spurious regression results.

Selection, Estimation and Evaluation of STR Model

Prior to the estimation of the STR model, we need to conduct linearity tests in order to determine an appropriate transition variable for estima-

TABLE 3 Linearity Tests

Trans. var.	Tests statistics				Decision
	F	F4	F3	F2	
I/Y	$4.3438e^{-1}$	$1.5583e^{-1}$	$6.8692e^{-1}$	$5.6340e^{-1}$	Linear
$\dot{L}/L$	$3.6582e^{-1}$	$2.8636e^{-1}$	$2.4223e^{-1}$	$6.7763e^{-1}$	Linear
$\dot{T}_d/T$	$1.8651e^{-1}$	$7.4984e^{-1}$	$2.3839e^{-1}$	$5.8844e^{-2}$	Linear
$\dot{T}_{id}/T$	$2.9371e^{-1}$	$8.2546e^{-1}$	$6.7247e^{-1}$	$2.6595e^{-2}$	Linear
$\dot{T}_d/Y$	$2.7808e^{-3}$	$4.0006e^{-3}$	$5.7885e^{-2}$	$3.0139e^{-1}$	LSTR(1)
$\dot{T}_{id}/Y$	$1.4412e^{-2}$	$3.2655e^{-2}$	$6.2697e^{-1}$	$1.6723e^{-2}$	LSTR(1)#

NOTES The *F*-tests for nonlinearity are performed for each possible candidate of the transition variable and the variable with the strongest test rejection (i.e. the smallest *p*-value) is tagged with symbol #.

tion usage. The purpose of the suggested linearity tests is two-fold. Firstly, we use the linearity tests to inform us on which candidate transition variable is most suitable for modelling nonlinear behaviour among the time series. Secondly, we use the *p*-values from the linearity tests to determine whether the selected transition variable should be used to model the STR regression as either an LSTR-1 or LSTR-2 model. Pragmatically, we carry out the linearity tests by conducting a sequence of F-tests and compute their corresponding *p*-values. The decision rule is to choose the model which produces the lowest *p*-values. For the chosen model, we also conduct supplementary tests for no remaining nonlinearity. The results of the linearity tests are reported in table 3 whereas the results of the tests for no remaining nonlinearity are presented in table 4.

The linearity test results reported in table 3 reveal that the null hypothesis of linearity can be rejected for only two candidate variables, those being, the growth of direct taxes as a share of total income ($\frac{\dot{T}}{d}/Y$) and the growth of indirect taxes as a share of total income ($\dot{T}_{id}/Y$). However, given smaller *p*-values associated with the growth of indirect taxes as a share of total income ($\dot{T}_{id}/Y$), we consider this time series the most suitable transition variable for building our LSTR model. Also given that the F3 statistic produces the highest rejection associated with the ($\dot{T}_{id}/Y$) variable, we decide upon fitting an LSTR-1 to the data. Furthermore, the results of the tests of no remaining linearity, as performed on the chosen LSTR-1 model and reported in table 4, shows no evidence of remaining nonlinearity for the regression model.

Having conducted our linearity tests as well as the tests of no remaining

TABLE 4 Tests of no Remaining Nonlinearity

F-statistics	F	F4	F3	F2
p-value	$1.0809e^{-1}$	$1.6560e^{-1}$	$6.1657e^{-2}$	$6.5915e^{-1}$

nonlinearity, we proceed to estimate the LSTR-1 model with the growth of indirect taxes as a share of total income ($\dot{T}_{id}/Y$) being the transition variable. The parameter estimates of the selected LSTR-1 model are reported in table 5. We note that the threshold value of the transition variable is estimated to be 0.1027, which implies that the regimes are dependent upon whether $\dot{T}_{id}/Y < 0.1027$ (i.e. lower regime) or $\dot{T}_{id}/Y \geq 0.1027$ (i.e. upper regime). The relatively high transition parameter estimate of 10.00 indicates a rather abrupt change in moving from one regime state to another. In the lower regime of the STR model, we find that direct taxes have a significantly negative impact on economic growth whereas indirect taxes exert a significantly positive effect on growth. One can note that these results are an improvement over those presented in De Wet, Schoeman, and Koch (2005) who find a similar result of a negative effect of direct taxes on economic growth and yet find an insignificant effect of indirect taxes on economic growth. Thus, by effect, our estimation results support the notion that government revenue collections could be improved, by shifting reliance from direct to indirect taxes. From a practical perspective, this could involve lowering personal income taxes and simultaneously spreading as well as increasing consumption taxes such as VAT and GST. This could also imply that tax administrators would increase the enforcement of the collection of indirect taxes through the implementation of appropriate audit tools.

Furthermore, in the lower regime of the model, the coefficients on the relative efficiency variables, $\dot{T}_d/Y$ and $\dot{T}_{id}/Y$, are significant with the coefficient on the $\dot{T}_d/Y$ variable being positive, thus implying that resources collected by the public sector can be used more efficient by the government than resources collected in the rest of the real sector. Once again, this result is an improvement over that reported in De Wet, Schoeman, and Koch (2005), who find no efficiency effects associated with public revenue collection.

Another finding worth pointing out concerns the growth in the labour force ($\dot{L}/L$), of which under the lower regime produces a statistically significant and positive coefficient which turns negative and insignificant in the upper regime of the model. Notably, Phiri (2014) finds a similar find-

ing of regime switching behaviour between employment and economic growth for South African data.

Also note that the coefficient on the investment variable produces a significantly negative estimate in the lower regime and remains negative and yet insignificant in the upper regime of the model. This negative coefficient on the investment variable contradicts conventional growth theory and yet for the case of South Africa is a plausible result for the following two reasons. Firstly, a greater part of South Africa's investments are not 'Greenfield investments' which would contribute to infrastructure development and job creation but are rather mergers and acquisitions (Fortainer 2007). The second reason is that the current high levels of public spending and budget deficits crowd out the positive effects of investment in the South African economy (Biza, Kapingura, and Tsegaye 2015).

In observing the coefficient estimates found in the upper regime of the model, we notice that the impact of all these growth explanatory variables become insignificant. By default, this implies that the lower regime of the estimated LSTR-1 model is most efficient and that policymakers should strive to keep the economy in such a state, that is, to keep the growth of indirect taxes as a share of total income ($\dot{T}_{id}/Y$) below 10.27 percent. The diagnostics tests performed on the estimated LSTR-1 model show that the regression residuals are well-behaved. In particular, evidence is provided for no autocorrelation, for no ARCH effects and also sufficient evidence for normality of the regression residuals.

Conclusions

With discussions of tax reforms being high on the agenda of fiscal authorities in South Africa, the main objective of this paper was to investigate the growth trade-off effects between direct and indirect taxes in the country using interpolated quarterly time series data collected from 1990:q1 to 2015:q2. While the necessity to account for nonlinearities in the estimation process has long been advocated for, we are unaware of any previous studies which have done so for the case of South Africa. Therefore, in differing from previous studies conducted for South Africa, we test for nonlinearities in the taxation-growth relationship by using the recently developed LSTR model. The theoretical framework for our case study is adopted from De Wet, Schoeman, and Koch (2005) who develop an augmented empirical model based on the Feder's (1983) two-sector production function model. The application the LSTR estimators to the theoretical model is favourable in producing a more theoretical appealing results

TABLE 5 STR Regression Estimates

independent variable	Linear part	Nonlinear part
I/Y	−0.83098 (0.00)***	−0.07133 (0.87)
$\dot{L}/L$	0.07449 (0.00)***	−0.01991 (0.62)
$\dot{T}_d/T$	−0.56565 (0.00)***	0.27585 (0.62)
$\dot{T}_{id}/T$	0.38683 (0.00)***	−0.03800 (0.96)
$\dot{T}_d/Y$	0.54695 (0.00)***	−0.24632 (0.59)
$\dot{T}_{id}/Y$	−0.46797 (0.00)***	0.27639 (0.63)
c		10.00 (0.02)**
γ		0.1027 (0.00)***
LM(4)		6.70 (0.00)***
ARCH(4)		11.20 (0.03)
J-B		0.92 (0.63)

NOTES   *t*-statistics are reported in parentheses. Significance levels are given as follows: ***, **, and * represent the 1%, 5% and 10% significance levels respectively. LM and ARCH respectively denote the Lagrange Multiplier and Ljung-Box statistics for autocorrelation whilst the J-B denotes the Jarque-Bera normality test of the regression residuals.

in comparison to estimates that could have been obtained from other nonlinear econometric models. This is because the transition between the model regimes in the STR model is conducted in a smooth manner and the rate of adjustment between both regimes can be measured. Moreover, the variable responsible for the regime switching behaviour in the LSTR model is determined intrinsically as part of the estimation process.

Indeed, our empirical results confirm the existence of a nonlinear growth trade-off effects with direct and indirect taxes for the data, with indirect taxes accounting for the regime switching behaviour in the estimated model. Interestingly enough, our results show that both direct and indirect taxes are only significantly related with economic growth when the indirect tax-growth ratio is below a threshold of 10.24 percent. Below this threshold, we observe that indirect taxes are positively related with economic growth whilst direct taxes adversely affect growth. Moreover, it is within this lower regime that we find resources collected by government can be efficiently used and that the labour growth variable has a positive effect on economic growth. By policy implication this presents a case for fiscal authorities to exploit the nonlinear tax-growth relationship to their advantage by specifically exploiting the positive relationship found between indirect taxes and economic growth below the established

threshold. This, in turn, would entail a gradual shift of reliance in collecting government revenue from direct taxes to indirect taxes. And yet is should be cautioned that policymakers should take care to not breach the threshold level and avoid moving the economy into regions beyond the threshold point. Research similar to ours could also be extended to other Sub-Saharan African (ssa) countries in view of limited empirical evidence for these countries. This would an ideal for future research seeing that African countries tend to be more reliant on government revenues for social and economic welfare.

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Capital Structure Determinants of Small and Medium Enterprises in Croatia

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Most of the research about capital structure is focused towards two theories: trade off theory (TOT) and pecking order theory (POT). The idea is to explore which theory works better in certain conditions and identify the key determinants that affect the capital structure of the company. However, in different countries different determinants with opposite relation to the leverage are found to be significant. Besides, most of the previous researches are oriented on listed companies. The aim of this paper is to analyse the capital structure of small and medium enterprises in Croatia through the analysis of the fundamental determinants of the capital structure. The research was conducted on a data sample of 500 SMES in Croatia in the period of 2005–2011. On the unbalanced panel data set a linear regression is applied. Influence of determinants on leverage is estimated by a static panel model with random effect and with fixed effect estimation. Four capital structure determinants are analysed: growth, size, profitability and tangible assets. The results of this research support the pecking order theory confirming that SMES in Croatia are primarily financed from internally generated funds that affect profitability, growth, tangible assets and enterprise size.

Key Words: capital structure, determinants of capital structure, trade off theory, pecking order theory
JEL Classification: C23, C51, F36, G32

Introduction

Capital structure is one of the most intriguing fields in financial management. Since the publication of the famous paper by Modigliani and Miller (1958), the relation between debt and equity has generated a great interest among researchers. Capital structure researches are focused toward two theories: trade off theory (TOT) and pecking order theory (POT). From the theoretical point of view, existing empirical studies widely used two

models of capital structure: the trade-off theory and the pecking order theory. Trade-off theory implies that a company's capital structure decisions involve a trade-off between the tax benefits of debt financing and the costs of financial distress. The pecking order theory points out that there is a certain order in financing, starting from retained earnings as a primary source of internal financing, then moving to debt and using equity only as the last resort. Each of these theories suggests how certain determinants affect capital structure. According to theories, researchers found various impacts of determinants on capital structure depending on the country they are analysing. From these theories a number of relationships between determinants and debt-equity choice can be derived. Capital structure theories were developed focusing on large listed companies. However, theoretical implications of capital structure can also be applied on the SMES where determinants have different effect on SMES compared to large companies (Daskalakis and Thanou 2010). The aim of this paper is to analyse the capital structure of small and medium enterprises through the analysis of the fundamental determinants of the capital structure. In such a way the paper is filling the gap in the capital structure analysis of the SMES. The analysis is made for the Croatian set of non-listed small and medium enterprises. According to Orsag (2003) capital structure refers to long-term financial structure consisting of long-term debt and equity. Short-term and current liabilities are excluded from the overall financial structure. In this paper capital structure is represented by leverage measured with long-term liabilities over total assets. Orsag (2003) also states that the term leverage is primarily associated with the use of long-term debt to finance their business.

Croatia is a country in transition and a new member of the European Union, and as such it is an interesting case study. In this paper the relationship between leverage and the capital structure determinants such as growth, size, profitability and tangible assets are tested. Based on these results, conclusion is made whether Croatian SMES are following the pecking order theory which insists on financial hierarchy or the trade off theory, which balances between tax shield and the cost of financial distress. In the period from 2003 to 2007 Croatian economy was accompanied by dynamic growth in economic activity. Growth driver was the internal demand, increased investment and personal consumption. All of it is accompanied by strong lending activity of banks. The reduction in economic activity started in the second half of 2008, which led to a decrease in the growth rate to 2.4% in that year. Due to the impact of the global

economic crisis and the lack of action measures of the state to mitigate the impact of the crisis, in 2009 deterioration of the economy continued with the decline in the gross domestic product of 6%. In 2010, the crisis continued, which led to a drop in GDP of 1.2%, primarily due to a decline in personal consumption and investment and internal demand. Croatian SMES in the period from 2000 to 2010 recorded the highest net profit in 2007 of 11.3 billion kunas.[1] In 2008, net profit fell to 7.8 billion kunas, in 2009 to 1.2 billion kunas, and in 2010 6.5 billion kunas net loss.

Regarding unfavourable and difficult macroeconomic conditions, which imply illiquidity of the economy, reducing economic activity and a slowdown in the companies' growth, the following hypotheses will be tested in this paper:

H1 *There is a negative relationship between SMES' growth and leverage. If the growth of a SMES is measured as the percentage change in total assets over the previous year, the SMES that invest in their properties do not need to borrow, or can be financed from internally generated funds.*

H2 *There is a negative relationship between SMES' size (sales revenue) and leverage. By increasing sales revenue, SMES are more financed by internally generated funds and are less leveraged.*

H3 *There is a negative relationship between SMES' profitability and leverage. SMES which are more profitable, less likely to borrow money because it will be funded from its own resources, therefore the expected impact on the capital structure is negative.*

H4 *There is a positive relationship between SMES' tangible assets and leverage. SMES need collateral when taking loans in the banks. Collateral position in the balance sheet is represented with tangible assets. SMES with higher tangible assets have better chances for borrowing from financial institutions.*

The next chapter is a review of previous researches on the determinants of the capital structure. The third chapter is a description of the sample and the methods used in the research followed by research results. The paper ends with the conclusion and discussion.

Previous Research

Beck, Demirgüç-Kunt, and Maksimovic (2004) point out that most of the companies with limited access to external financing methods are small companies. In table 1 there is a presentation of previous researches which

analyse determinants of capital structure in different countries and on different samples in order to identify relationship between the determinants and leverage.

Akdal (2010) proved that profitability and growth are negatively related to the leverage while size and tangible assets positively. Gaud et al. (2005) concluded that size and tangible assets have positive relationship with leverage but growth and profitability negative relationship. Deari and Deari (2009) got opposite results for listed and non-listed companies. Listed companies in Macedonia showed negative relationship of profitability, tangible assets and tax protection to leverage and positive relationship of size and growth to leverage. Non-listed companies showed that profitability, tax protection and growth is in positive relationship with leverage while tangible assets and growth in negative relationship. Cole (2008) focused his research on small enterprises, primarily because he felt that the existing literature is not a reference for small enterprises. He believed that testing trade off theory and pecking order theory can determine the variables that affect the capital structure of smes. He conducted a research on a sample of small enterprises in the usa and concluded that leverage is negatively related to size and profitability and positively with tangible assets. Bas, Muradoglu, and Phylaktis (2009) analysed capital determinants focusing their research on smes in developing counties. The main determinants they discovered are tangible assets and profitability, which are negatively related to the leverage, then size and growth which are positively related to the leverage. Ramlall (2009) showed that there is a positive relationship between size and leverage and negative between tangible assets and leverage. Profitability and growth are proved to be significant determinants of capital structure. These results follow pecking order theory according to which companies with higher revenues are less leveraged and more financed by internally generated funds. Daskalakis and Psillaki (2008) in their research analysed capital structure determinants of Greece and French smes. One of their goals was to discover if the determinants are the same in both countries. They showed there are similarities as well as differences in the capital structures. In both countries there is a positive relation between size and leverage and also tangible assets and profitability are negatively related to leverage. Growth is positively related to leverage only in France. Authors concluded that Greek companies are more leveraged than French, which also have more tangible assets. Degryse, Goeij, and Kappert (2010) analysed smes in the Netherlands where they proved that leverage is posi-

TABLE 1 Previous Research on Capital Structure Determinants

Authors	Research period	Research focus	Sample size	Determinants
Akdal (2010)	2002–2009	Listed companies in UK	202	Profitability, size, tax protection, growth, tangible assets, liquidity and volatility
Gaud et al. (2005)	1991–2000	Listed companies in Switzerland	106	Tangible assets, size, profitability, growth and risk
Deari and Deari (2009)	200–2007	Listed and non-listed companies in Macedonia	32	Size, growth, tangible assets, profitability, tax protection
Cole (2008)	1987, 1993, 1998, 2003	SMES in the USA	5000000	Size, SMES age, growth, tangible assets, liquid assets, profitability, creditworthiness, industrial leverage
Bas, Muradoglu, and Phylaktis (2009)	2002–2005	Small, medium and large companies in 25 developing countries	11125	Tangible assets, size, profitability, growth, inflation, interest rate, tax rate, GDP
Ramlall (2009)	2005–2006	Small, medium and large companies in Mauritius	450	Size, growth, tangible assets, tax protection, profitability, liquidity, investment, companies' age
Psillaki and Daskalikis (2008)	1998–2002	SMES in Greece and France	16290	Size, growth, tangible assets, profitability
Degryse, Goeij, and Kappert (2010)	2003–2005	SMES in the Netherlands	99031	Tangible assets, non-tangible assets, size, profitability, growth, tax rate, depreciation
Song (2005)	1992–2000	SMES in Sweden	6000	Size, growth, tangible assets, profitability, tax protection, uniqueness of the product
Buferna, Bangassa, and Hodgkinsin (2005)	1995–1999	Public and private companies in Libya	55	Tangible assets, size, profitability, growth

tively related to size, tangible assets, growth and negatively to profitability. Dutch SMES use profit to borrow less. As they are more profitable, they

are financed by internally generated funds supporting the pecking order theory. It has also been shown that more Dutch SMES use long-term financing compared to short-term financing. In contrast to Dutch SMES, Song (2005) showed that Swedish SMES use twice as much short-term borrowing in relation to long-term borrowing. He showed that leverage is positively related to size, growth and tangible assets and negatively to profitability. Buferna, Bangassa, and Hodgkinsin (2005) conducted a research on private companies in Libya. They showed that leverage is in a positive relationship to profitability and size, and in a negative one to growth and tangible assets.

Methodology

The research was conducted on a data sample of 500 SMES in Croatia. According to the Croatian Accounting Act, a small enterprise has less than 50 employees and annual income or assets up to 10 million EUR. A medium enterprise has less than 250 employees and assets up to 50 million EUR. SMES are chosen randomly from the total population of SMES in Croatia.[2] Each firm is observed over a period between 2005 and 2011. Modelling was performed on unbalanced panel data. The year 2005 is the reference year, and the number of SMES decreased or stayed the same in other years, depending on whether SMES survived and every year submitted financial statements to the Financial Agency – FINA (in 2006 the number of observed SMES was 386, in 2007, 447 SMES in 2008, 425 SMES in 2009, 380 SMES in 2010, 366 SMES and 352 SMES in 2011). The sample included enterprises from all industry sectors in accordance with the National Classification of Activities except enterprises in public administration and defence, the insurance industry and pension funds. Financial statements in the form of balance sheets and income statements were available for all SMES in the sample. In table 2 there are names, description and descriptive statistics of the variables used in the research. In our research four determinants of the capital structure are analysed: growth, size, profitability and tangible assets. Leverage is measured long term liabilities over assets.

Linear regression is applied on the panel data set. Influence of determinants on leverage is estimated by static panel model (Verbeek 2004), where static models with random effect estimation and with fixed effect estimation are used.

Static models are built on the fixed years without relying on a combination of regression in previous years.

TABLE 2   Descriptive Statistics of the Variables Used in the Research

Variable	Year	Mean	Std. dev.
Assets growth (percentage change in total assets compared to previous year)	2005	–	–
	2006	6.01	32.60
	2007	3.44	27.13
	2008	0.31	22.20
	2009	−4.34	19.41
	2010	−6.19	19.94
	2011	−8.20	20.19
Size (natural logarithm of sales)	2005	13.23	2.06
	2006	13.36	2.16
	2007	13.58	2.16
	2008	13.71	2.12
	2009	13.65	2.10
	2010	13.48	2.17
	2011	12.36	2.11
Profitability (ratio of EBITDA to assets)	2005	0.06	0.12
	2006	0.06	0.12
	2007	0.09	0.15
	2008	0.08	0.16
	2009	0.07	0.18
	2010	0.04	0.10
	2011	0.03	0.13

Continued on the next page

A model with fixed effect includes varying intercept while vector β is fixed:

$$y_{it} = \alpha_i + \gamma_t + x_{it}^T\beta + u_{it}. \tag{1}$$

In practice, it is very common to use a form in which only intercept for cases varies, so the above model can be written:

$$y_{it} = \alpha_i + x_{it}^T\beta + \varepsilon_{it}, \tag{2}$$

where i stands for the cases and index t for time periods, y_{it} is dependent variable, its value for i case in time period t, x_{it} is vector of independent variables dimension $K \times 1$, β is vector of estimated coefficients dimension

TABLE 2   *Continued from the previous page*

Variable	Year	Mean	Std. dev.
Tangible assets in total assets	2005	0.27	0.29
	2006	0.27	0.28
	2007	0.27	0.28
	2008	0.30	0.31
	2009	0.31	0.32
	2010	0.32	0.32
	2011	0.33	0.29
L1 = ratio of liabilities and assets (total liabilities/total assets)	2005	0.74	0.36
	2006	0.74	0.39
	2007	0.72	0.42
	2008	0.70	0.40
	2009	0.69	0.41
	2010	0.70	0.42
	2011	0.72	0.40
L2 = ratio of long term liabilities and assets (long term liabilities/total assets)	2005	0.06	0.12
	2006	0.13	0.26
	2007	0.13	0.25
	2008	0.13	0.27
	2009	0.13	0.26
	2010	0.13	0.24
	2011	0.14	0.26
L3 = ratio of short term liabilities and assets (short term liabilities/total assets)	2005	0.58	0.39
	2006	0.60	0.39
	2007	0.59	0.42
	2008	0.57	0.40
	2009	0.57	0.43
	2010	0.57	0.42
	2011	0.58	0.41

$K \times 1$, α_i is a random variable that describes the unobserved effect of i case, and ε_{it} is a random variable with expected value 0 and variance which represents the model error.

The random effect model can be presented with a formula (2) in the same way as the fixed effect model. Depending on how we look at i this

model will differ from the fixed effects model. The fixed effects model shows all the unobserved individual effects of specific random variable. If we have a random effects model, then all unobserved effects are described by independent and equally distributed random variables. Choosing between a model with fixed effects and a model with random effects was made after conducting the Hausman test which tests the null hypothesis that there is no correlation between individual effects and explanatory variables.

In the first part of our analysis each determinant is individually tested in a way that bivariate regression panel analysis is done with dependent variables L2 (long-term liabilities/total assets) and independent variables growth, size, profitability and share of tangible assets in total assets, each tested separately. After that, multivariate panel regression model is developed with the L2 as a dependent variable. In the process of model development 23 independent variables were analysed. Several models with different combination of variables with random as well as with fixed effect estimation were developed. Finally, the model with random effect estimation consisted of 6 variables was chosen.

Results

Descriptive statistics of the variables used in the research is presented in table 2. Figures 1–3 and 4–7 show trend of analysed variables for the period from 2005 to 2011. It can be seen that the mean leverage (total liabilities/total assets) of the analysed Croatian companies ranged from 0.72 to 0.74 indicating the high leverage of Croatian companies, regardless of the negative trend. This trend can be caused by reduction in lending to enterprise sector after the economic crisis since 2007. The same trend can be seen in growth and profitability as a result of deterioration of economic growth in the given period. The ratio of short-term liabilities in total liabilities of the company was around 58%, indicating a high short-term debt of Croatian SMES.

The first hypothesis in the research is that growth is negatively related to leverage. In order to test the relationship between growth and leverage, bivariate panel regression with random effect is developed. Independent variable is 'growth' (percentage change in assets) and dependent variable is L2 (long-term liabilities/total assets). Estimated regression coefficient is 0.0002 with *p*-value 0.2243 showing that the relationship between long-term leverage and growth is positive but we didn't find it statistically significant.
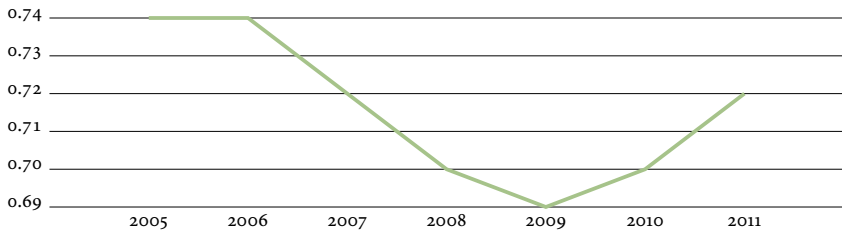
FIGURE 1   Leverage Ratios over the Period 2005–2011: Liabilities and Assets
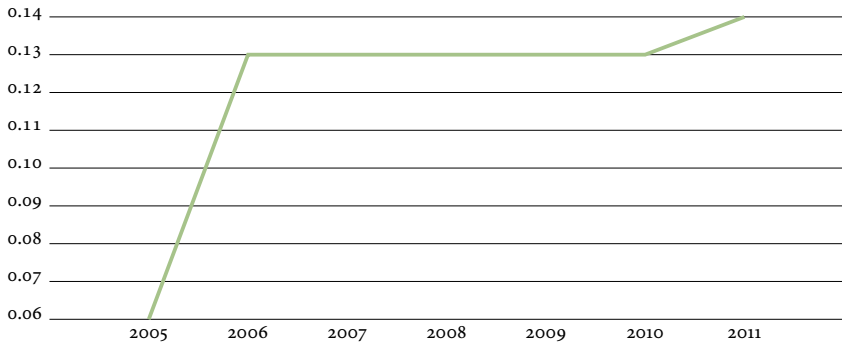
FIGURE 2   Leverage Ratios over the Period 2005–2011: Long Term
Liabilities and Assets
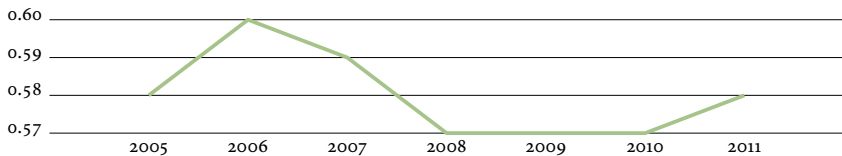
FIGURE 3   Leverage Ratios over the Period 2005–2011: Short Term
Liabilities and Assets

The second hypothesis is that there is a negative relationship between size and leverage. In order to test the relationship, bivariate panel regression is developed with the size (sales revenue) as independent variable and L2 (long-term liabilities/total assets) as dependent variable. Random effect is applied for L2 (Hausman $p = 0.0675$). Estimated regression coefficient is 0.0089 with p-value < 0.0001 showing that the relationship between long-term leverage and size is positive and statistically significant. Results show that with the increase of the sales revenue, there is an increase in L2 (long term leverage).

The third hypothesis in our research is that profitability and leverage is negatively related. Bivariate panel regression with fixed effect es-
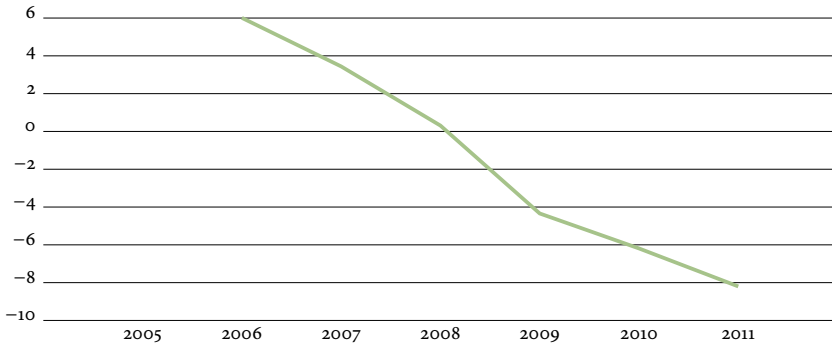
FIGURE 4   Capital Structure Determinants over the Period 2005–2011: Asset Growth
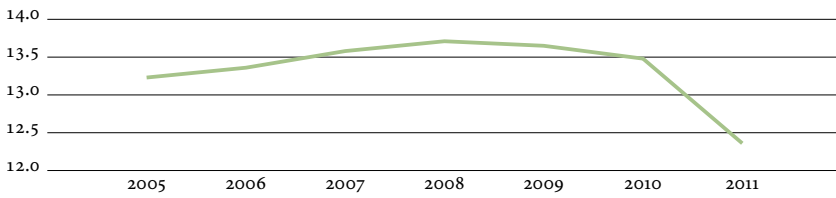
FIGURE 5   Capital Structure Determinants over the Period 2005–2011: Sales
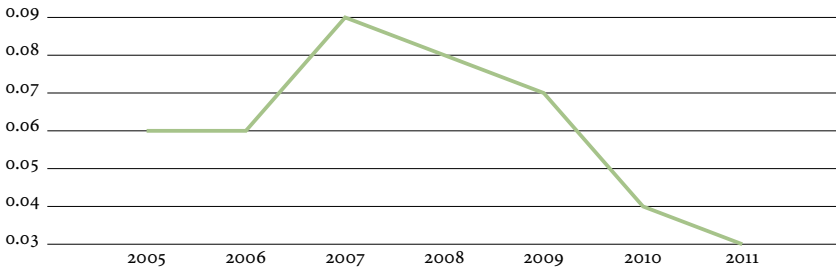
FIGURE 6   Capital Structure Determinants over the Period 2005–2011: Profitability
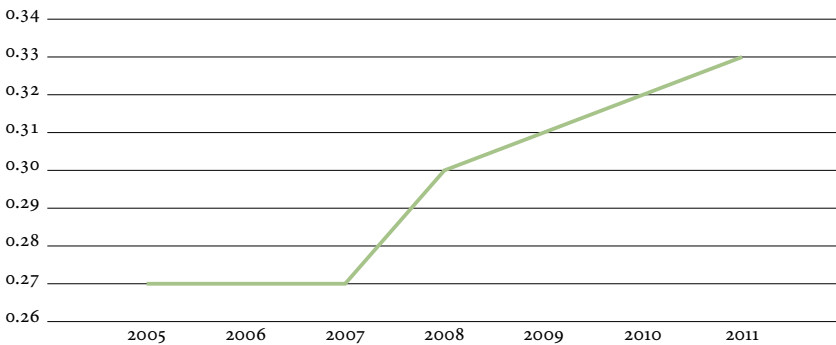
FIGURE 7   Capital Structure Determinants over the Period 2005–2011: Tangible Assets in Total Assets

timation is developed (Hausman test $p < 0.0001$). Dependent variable is L2 (long-term liabilities/total assets) and independent variable is ratio of EBITDA to assets. Estimated regression coefficient is -0.3865 with p-value < 0.0001 showing that the relationship between long-term leverage and profitability is statistically significant with the negative sign. It confirms the hypothesis that with the increase of EBITDA to assets there is the decrease of long-term leverage.

The forth hypothesis in the research is that there is a positive relationship between ratio of tangible assets in the total assets and leverage. In order to test the hypothesis, panel regression with fixed effect is developed (Hausman test $p < 0.0001$). The independent variable is 'tangible assets in total assets' and dependent variable is L2 (long-term liabilities/total assets). Estimated regression coefficient is 0.1153 with p-value < 0.0001 showing that the relationship between long-term leverage and tangible assets is positive and statistically significant. It can be confirmed that with the increase of tangible assets in the total assets there is the increase in the long-term leverage.

After examining each of the determinants individually, the next step in our analysis was to develop multivariate panel regression model. In the process of model development 22 independent variables were analysed: yearly percentage change in total assets, sales revenue, ratio of EBITDA to assets, tangible assets to total assets, amortization over assets, financial assets to short-term liabilities, current ratio, quick ratio, ratio of fixed assets to equity and long-term liabilities, total debt ratio, equity to assets ratio, debt-equity ratio, equity to tangible assets, equity and long-term liabilities over tangible assets, total asset turnover, fixed asset turnover, current asset turnover, receivables turnover, ratio of revenues and expenses, profit margin, return on assets and return on equity.

Different combinations of independent variables with random as well as with fixed effect estimation are tested. We wanted to explore which financial coefficients are significant in describing capital structure of the SMES in Croatia. Since there were 22 financial ratios, we wanted to explore whether the financial ratios we set in our hypotheses will be extracted in the final model. The final multivariate panel regression model with random effect estimation consisted of 6 variables explaining a long-term liability to total assets was chosen. It is presented in table 3.

It can be noticed that the long-term leverage will be increased with the increase of the percentage of assets growth, sales revenue, ratio of tangible assets in total assets, ratio of amortization and total assets and ratio of

TABLE 3 Multivariate Panel Regression Model for L2 (Long-Term Liabilities/Total Assets)

Variable	Est. regression coeff.	p-value
Percentage of assets growth	0.00039	0.01236
EBITDA/assets	−0.06774	0.05605
Sales revenue	0.00262	0.01072
Tangible assets in total assets	0.23658	< 0.0001
Amortization over total assets	0.20971	0.0849
Financial assets/current liabilities	0.02538	0.00373

financial assets and current liabilities and with the decrease of the profitability measured with the ratio of EBITDA and assets. We consider four hypotheses on the determinants of growth, size, profitability and tangible assets over long term debt. Two of them related to profitability and tangible assets are confirmed and other two related to sales and growth are not confirmed. Concerning growth and leverage, we assumed that SMES that invest in their properties are financed from internally generated funds but the results showed that they rely more on long term financing than internally generated funds. The same is shown in the second hypothesis where we expected negative relationship between sales revenue and leverage but got positive.

Conclusion and Discussion

The aim of this research was to analyse the capital structure determinants of SMES in Croatia. Previous studies depending on the country where the research was conducted have shown a positive or a negative relationship between growth, size, profitability, tangible assets and capital structure.

These results confirm once again that there is no optimal capital structure because financial market conditions constantly change and vary from country to country. However, there are researches in which results are trying to bring the capital structure to the entrepreneurs who can identify deficiencies and advantages of certain ways of financing their enterprises.

The results of this research support the pecking order theory, confirming that SMES in Croatia are primarily financed from internally generated funds that affect profitability, growth, tangible assets and enterprise size. In accordance with the theory, more profitable SMES are less long term leveraged and more financed by internally generated funds.

They use retained earnings as the primary source of funding and thus reduce the level of borrowing. The same results are proven by Akdal (2010), Gaud et al. (2005), Deari and Deari (2009), Cole (2008.), Bas, Muradoglu, and Phylaktis (2009), Daskalakis and Psillaki (2008), Degryse, Goeij, and Kappert (2010) and Song (2005) while Buferna, Bangassa, and Hodgkinsin (2005) have shown positive relationship between profitability and leverage. Previous researches twofold interpret the influence of the growth to leverage.

Trade off theory predicts a negative relation between firm growth and leverage, like we did. SMES with the growth tendency have the lower leverage because they use free cash flow in their investments (negative relationship). By contrasts, the pecking order theory predicts positive relation between growth and leverage. SMES that generate additional investments opportunities will be funded through debt (positive relationship). Croatian SMES with tendency to growth increase long-term borrowing, meaning that internal funds are not sufficient for high growth enterprises, which increases their demand for long term debt.

Positive impact of growth to leverage is also confirmed by the results of Degryse, Goeij, and Kappert (2010) and Deari and Deari (2009). The relationship between size and long-term leverage is positive, as the trade off theory predicts. Most authors like Gaud et al. (2005), Buferna, Bangassa, and Hodgkinsin (2005) Psillaki and Daskalikis (2008) have shown that larger enterprises exhibit higher leverage. The value of tangible assets of the company is reflected in its role of collateral.

Results of this research are in accordance with the maturity matching principle that long term assets are financed with long term financing. It is proven that small and medium enterprises use their collateral to attract long term debt with relatively lower interest rates and costs of banks. These results confirmed that it is important to research the capital structure of SMES.

From our research it can be concluded that small and medium enterprises in Croatia use profit to reduce debt, use tangible assets as collateral in long term financing, and increase debt by increasing size and growth potential. In order to provide more financing opportunities for small and medium enterprises in Croatia, it is advisable for Croatia to provide the development of financial markets focusing on small and medium enterprises financial needs. As guidelines for further research, we suggest extensions of data series, including macroeconomic factors as new variables.

Notes

1 1 EUR = 7.5 kunas.

2 Financial Agency – FINA has made the data available for this research.

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Determinants of Pharmaceutical Industry's Performance in Nigeria

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This study focused on the relationships among market structure, efficiency and performance of the Nigerian Pharmaceutical industry. It employed market share and operational efficiency to determine the efficiency of the industry, pre-tax return on asset to measure performance, Herfindahl-Hirschman index to measure market structure. In addition, earnings per share was used in the study as control variable. Data were obtained from the Nigerian Stock Market Factbook covering 1996 to 2010. The panel ordinary least squares technique was employed in estimating the data. Thus over the course of the study, both fixed and random effect results clearly showed that efficiency hypothesis does not hold in the case of pharmaceutical industry in Nigeria. Rather, it is shown that it is structure that determines performance. Consequently, the study recommended that necessary structures must be put in place by the Federal Ministry of Health to enhance the capacity of local pharmaceutical firms in producing the desired quality and quantity drugs needed in the country. It was also recommended that efforts should be geared towards eradicating totally the importation of fake drugs in the pharmaceutical industry.

Key Words: efficiency, structure-conduct-performance, pharmaceutical industry, Nigeria
JEL Classification: L1, D4

Introduction

Literature on industrial economics suggests a negative relationship between market performance and market concentration. To this end, the hypothesis relating market performance to market concentration is what the Structure-Conduct-Performance (SCP) paradigm attempts to explain. The theory simply posits that market structure, (such as entry barriers and number of firms) will determine the conduct of firms operating in

the market (in terms of collusion, advertising etc.), while conduct will in turn determine market performance.

With the size of the Nigerian Pharmaceutical industry, which has been estimated to be around $600 million (Business Monitor International 2009), the industry can be placed among the biggest in the Nigerian market. Put differently, Nigeria has one of the most promising and rapidly growing pharmaceutical markets in West Africa with more than 110 pharma formulation manufacturing facilities. The Nigerian pharma industry is growing at 12 percent annually. The market size has been estimated to be USD 717 million in 2011 and it has also been confirmed that about 60 per cent of drug manufacturing in the ECOWAS (Economic Community of West African States) sub-region takes place in Nigeria, giving credence to the huge sub regional market. However, the Nigerian Pharmaceutical industry as it is today is still plagued by series of challenges[1] which has hampered its growth potentials. In an attempt to address these problems, Nigeria in March 2011 signed a Memorandum of Understanding on cooperation in Pharmaceutical Sector with India. This made India exports of pharmaceutical products, including Active Pharmaceutical Ingredients (APIS) and fine chemicals to Nigeria to stand at $307 million as at March 31, 2012 (*Business Day* 2014).

In terms of production, contributions from Pharmaceutical Manufacturing Group of Manufacturers' Association of Nigeria (PMG-MAN) and United Nations Industrial Development Organization (UNIDO) affirm that the local pharmaceutical manufacturing industry in Nigeria is currently able to meet 25 per cent of local demand. The remaining 75 per cent has to be covered with imports from Asian companies, most especially, China. According to UNIDO, Nigerian manufacturers produce liquid preparations, tablets, capsules, ointments, lotions, creams and ophthalmic preparations (UNIDO 2011). Generally, the production flow scheme is in accordance with Good Manufacturing Practice, because production processes as at present are step-by-step, mixed manual and automated with the degree of automation varying between around 30 per cent and 80 per cent (UNIDO 2011). In terms of installed capacity, the average capacity utilization in Nigeria's pharmaceutical industry, as reported by various government committees is 40 per cent (Pharmaceutical Manufacturing Group of Manufacturers' Association of Nigeria 2010). Although this represents a substantial volume of underutilized capacity, it also means that ample spare capacity is available – without extensive new capital investment – if manufacturers can become

more competitive in the aspect of imported products (UNIDO 2010).

The pharmaceutical industry is facing a productivity crisis. Notwithstanding extraordinary scientific achievements such as completing the sequencing of the human genome, the rate at which the industry generates new products appears to be shrinking (Cockburn 2004). This is synonymous with the Nigerian Pharmaceutical market as distribution of medicines is highly problematic. This is because too many organizations and stakeholders are involved. Some major manufacturers contract private logistics organizations to distribute medicines while some international development partners even use the services of courier companies for delivery of medicines. The implication of this is that in some cases, medicines expire before they reach the end users (UNIDO). In the private sector, manufacturers and importers have their own distribution channels and can sell to wholesalers, retailers and hospitals. The result of this is often that medicines and medical supplies are sold in unregistered and unlicensed premises and, in some cases, by non-pharmacists (UNIDO 2010). It is also generally believed that some 17 per cent of essential generic medicines as a whole are routinely imitated. As much as 30 per cent of anti-malarials in the Nigerian market fall under the category of imitated drugs (Pharmaceutical Manufacturing Group of Manufacturers' Association of Nigeria 2010). However, it has been suggested that one way of confronting this problem would be through the introduction of Radio Frequency Identification Technology for Logistics and Tagging (UNIDO).

In 2009, the World Health Organization (WHO), in collaboration with the National Agency for Food and Drug Administration and Control (NAFDAC), developed the 'Nigerian Good Manufacturing Practices' (NGMP). To this end, training workshops were organised by WHO for both PMG-MAN and NAFDAC staff on this subject. The appropriate application of the principles contained in the programme will be able to enhance the standards of local manufacturing and improve the quality of locally produced medicines in Nigeria (UNIDO 2010).

This paper applied industrial economic theory and combined pharmaceutical data to provide a detailed analysis for the market structure, market conduct and performance of the pharmaceutical industry in Nigeria in recent years. This application is done according to the paradigm of the structure-conduct-performance (SCP). The focus of this paper is to take a critical look at the Nigerian pharmaceutical industry to determine what actually drives the performance of the industry, whether it is the structure

of firms as claimed by Mason (1939) and later expanded by Bain (1959), or efficiency, as asserted by Adhikari (2005).

However, there is relatively little research on the issue of scp and efficiency (market concentration and efficiency) relationship with profitability in pharmaceutical industry. The available research on market structure, efficiency and profitability (performance) relationship mainly focused on either the Indian Pharmaceutical industry with inconsistent results (Adhikari 2005; Praven and Tapan 2005), or the Chinese biopharmaceutical industry (Jiankang 2014).

To our knowledge, the research focusing on the issue of complex relationships among market structure, conduct, performance and efficiency hypothesis of pharmaceutical industry in Nigeria is non-existent. The absence of any study regarding the pharmaceutical industry in the country and observed inconsistency in existing papers encouraged us to pursue the in-depth analysis of the problem. Resolving this inconsistency will be the contribution of this study to the literature.

The paper is organised as follows: Section two reviews the relevant literature that is germane to structure-conduct-performance paradigm and its relevance in different countries. Section three presents the theoretical framework, while section four discusses research methodology. Finally, Section five provides a discussion of the empirical results and concludes with policy recommendations.

Literature Review

THEORETICAL REVIEW

The framework of market structure conduct and performance (scp) originated from neo classical' attempts to analyse markets. The structure conduct and performance paradigm was developed by the Harvard school of thought and popularized between 1940s and 1960s. Its empirical work, as carried out by Bain in 1951, involved identifying the correlations between industry structure and performance (Olagunju et al. 2012). The structure, conduct and performance empirical study have led in this regard to the implementation of most anti-trust legislation. Peltzman (1976) of the Chicago school of thought in his study on 'General Theory of Regulation' followed suit by emphasizing the rationale for firms becoming big. The study also looked at price theory and econometric estimation.

A comprehensive review of the scp studies was provided by Schmalensee (1989). Prior to 1990, game theories took the center stage with emphasis on strategic decision making and the Nash equilibrium con-

cept (Tirole 1988). After 1990, however, empirical industrial organization making use of economic theory and econometrics resulted in a complex empirical modeling of technological changes, merger analysis, entry and exit as well as the identification of market power.

The underlying assumption of the market structure, conduct, and performance analysis is the inverse relation between the degree of market concentration and degree of competition. This is so because market concentration encourages collusive behavior among firms. More specifically, the standard structure-conduct-performance paradigm asserts the existence of a direct relationship between the degree of market concentration and the degree of competition among firms. This hypothesis will be supported if there is a positive relationship between market concentration (measured by the Herfindahl-Hirschman Index) and performance (measured by profits), regardless of the efficiency (measured by market share) of the firm. Thus firms in more concentrated industries will earn higher profits than firms operating in less concentrated industries, irrespective of their efficiency.

The scp Paradigm

The theoretical starting point in the explanation of the scp framework originated from the extreme microeconomic theories of market structure; monopoly and perfect competition. The structural characteristics of the perfectly competitive market are a large number of firms with almost equal sizes with no barrier to entry. Long-run equilibrium price equals marginal and average costs with profits at a normal level in perfect competition. Under monopoly, however, the industrial structure is characterized by one player (firm) with high restriction to entry and the outcome of such barrier is that marginal cost is equated with marginal revenue, setting price above the marginal cost and reaping supernormal profits in the process. Consequent upon this, the position of any particular industry can be defined along this spectrum by considering the structure of such industry along the number of firms in such industry, the ease (or otherwise) of entry and from such structure, predict the performance of that industry, especially with respect to profitability or return to assets. In summary, the scp paradigm predicts a positive relationship between the level of concentration in a given market and profits and output prices (Mason 1957).

The link between concentration and performance (profitability) could be modelled from the Cournot oligopolistic behaviour model (Ruthern-

berg 1994). Assuming an industry with N number of firms and each firm with homogeneous products Q, the profit maximization function of a given individual firm could be specified as the difference between revenue and cost (that is $P_Q Q - C_Q$). All firms are assumed to have identical cost functions while it is also suggested that output decisions of all firms are independent of another. The market equilibrium equation of the industry is given as:

$$\frac{P_Q - C(\frac{Q}{N})}{P_Q} = \frac{1}{N}\frac{1}{\eta}, \tag{1}$$

where η is the price elasticity of demand.

   If we further assume that the assumption of identical cost function is relaxed and replaced with an element (λ) which measures the expectations of any firm with respect to rival's reaction of such firms output decisions, the market equilibrium function could be rewritten as:

$$L = \frac{P_Q - MC}{P_Q} = H(1 + \lambda)\frac{1}{N}, \tag{2}$$

where L is the Lerner index and H is the Herfindahl index of concentration. The Herfindahl index is measured as the sum of squared market shares of firms in the industry.

The Efficiency Hypothesis

Challenging the scp framework, the efficiency hypothesis asserts that the efficiency of a firm defines the relationship between the structure and performance of such firm. In other words, if a firm is highly efficient relative to its competitors, it can maximize profit by maintaining its current size and pricing policy or even maintain a price reduction and expanded operations. The efficient-structure hypothesis further states that only firms' efficiency can explain the positive relationship between profits and the concentration or profits and market share. The X-efficiency argument states that firms with superior management or productive efficient technologies enjoy costs reductions (lower costs) and so make higher profits (Demsetz 1973; Brozen 1982; Gale and Branch 1982). The scale efficiency argument contends that firms may have comparable quality of management and technology, but some firms produce at a more efficient scale than other firms, thus they have lower unit costs and higher unit profits. Such firms are assumed to acquire larger market shares, which may result in higher levels of concentration.

EMPIRICAL REVIEW

The subject matter of the relevance of the structure-conduct-performance as well as efficiency theory has been documented in empirical literature. Studies like Demsetz (1973), Berger (1995), Howard and Timothy (1999), Cockburn (2004), Praveen and Tapan (2005) and others are reviewed in this study.

Howard and Timothy (1999), in a study linking scp paradigm to competence-based competition, looked at how the resource-based view of the firm and the theory of competence-based competition can be used to integrate these perspectives. They concluded by proposing six issues which should motivate future strategy research, and which can help and enhance our understanding of how firms compete.

Nanyang (2003) applied the scp Framework to analyse the media industry in Singapore. The study restated the constructs and premises of the scp model, and the orthodox economic notions of market performance as well as the logic that underlies the model are clarified. The paper also discussed conceptualizations and interpretations commonly found in media market studies. Media issues such as content diversity and media concentration, which are often studied through the s–c–p approach, were also reexamined. It further identified and addressed common misconceptions found in using the framework to study the media industry and also expounded how utilization of the model can be enhanced.

Cockburn (2004) researched into the changing structure of the pharmaceutical industry in the United States and found that rising research and development (r&d) expenditures by pharmaceutical firms are consequence of changing industry structure, particularly the rise of the biotechnology sector. The creation of a market for biomedical science and increased vertical competition within the industry are likely to boost innovation and improve productivity. This can also induce socially wasteful spending and weaken academic science within the industry. The study asserted that with innovation increasingly dependent on financially vulnerable firms and complex contractual arrangements, research and development investment may become more sensitive to price controls or other cost containment measures.

Adhikari (2005) studied scp vs. efficiency approach to carry out an empirical analysis of the Indian Pharmaceutical Industry. The study posited that scp approach in the pharmaceutical industry is not relevant due to negligible concentration and low barrier to entry. The paper

fundamentally addressed efficiency approach to find out what the factors influencing efficiency of firms in the pharmaceutical industry are. Data of all companies available in prowess database are taken for empirical analysis. Two multivariate techniques of factor analysis and multiple regressions were applied. The result shows that research and development as well as advertising plays no significant role in the efficiency of the firm and thereby advocated that firms should take another look at the return on investment in research or make it more selective than general.

Praveen and Tapan (2005) looked at the relevance of the scp paradigm to the Indian Industry as a whole by elucidating the basic ideas of scp theory, and reviewing studies that used the paradigm, while also exploring its relevance to the Indian industry. They discussed in-depth the relationship between concentration and performance in the Indian industry. The study underscored the increasing significance of the scp paradigm in the post-reform Indian Industry.

Tung, Lin, and Wang (2010) looked at the market structure, conduct and performance paradigm re-applied to the international tourist hotel industry. Due to the shortcomings of previous studies to confirm the causality of the hotel industry, the paper developed a comprehensive model, based on realistic data on hotels, which allowed the analysis of the system through three simultaneous equations, market share, advertising, and profitability. In a sample of 360 Taiwanese international tourist hotels, three-stage least squares results indicate that: (1) two-way causes and effects exist between the market structure and strategic behaviour; (2) a brand positive effect shows on the market share; and (3) a firms' profitability is positively, and significantly, impacted by market share, but is affected negatively by total operating costs and capital intensity, which confirms hotel industry issues regarding capital.

Jiankang (2014) researched into the scp analysis of biopharmaceutical industry in China. The paper analysed the market structure, enterprise conduct and performance of biological pharmaceutical industry in China. It is suggested in the paper that the government need to speed up the industrial restructuring, to optimize the industrial structure, to encourage the similar innovation, to optimize approval procedures of biological generics, etc.

Finally, since the emergence of the neo-classical study of Mason in 1939, which posited that a direct causal link exists between the structure and performance of a firm, series of other studies like Demsetz (1973) and Berger (1995) have refuted the argument by claiming that there can

exist a causality reversal where performance can determine the structure of firms. The lack of consensus reached by these studies has also led Adhikari (2005) to come up with efficiency approach to studying the performance of pharmaceutical firms in India.

This current study will lean on the study conducted by Adhikari (2005) on the performance of pharmaceutical industries in India to determine what really drives the Nigerian pharmaceutical industry, whether it is structure or efficiency. To this end, since studies of this sort especially as it pertains to the pharmaceutical industry are scanty in Nigeria, this paper tries to fill this gap in the literature. It is not only that the main contribution of the research presented in this study is original, as it presents the first study of s–c–p/efficiency relationship in the pharmaceutical industry in Nigeria, but it also contains results that extend and complement those in existing literature on the s–c–p paradigm related to the pharmaceutical industry.

Theoretical Framework and Research Methodology

Several studies have estimated the relationship between market structure and performance by employing the model of Ruthernberg (1994):

$$\pi_{it} = f(H_{it}, PC_{it}, NNI_{it}, R_{it}, Z_{it}), \tag{3}$$

where π is a measure of performance; H measures concentration; PC is a proxy for potential competition; NNI measures non-interest income; R is the overall risk all firms are exposed to in the country and z is the vector all other control variables. i and t represent all pharmaceutical firms and period identifier respectively.

However, to investigate the relationships among market structure, efficiency and performance for the Nigerian Pharmaceutical industry, we established the following equations based on the model of Berger (1995) and Goldberg and Rai (1996).

$$Perf_{it} = \alpha_{10} + \alpha_{11}MS_{it} + \alpha_{12}HHI_{it} + \alpha X_{it} + v_{it}, \tag{4}$$

where *Perf* (performance), is a measure of Pharmaceutical firms' pre-tax return on asset; MS is the market share which is measured with each Pharmaceutical firms' turnover divided by all Pharmaceutical firms' turnover; HHI is the market concentration measure obtained by summing the squares of market shares of Pharmaceutical firms; X is a set of control variables which are related to the Pharmaceutical industry. In this case, the set of control variables employed EPS (earnings per share) and

OE (Operational Efficiency) obtained by dividing turnover by the operating expenses of all firms in the industry, while v is the stochastic error term which captures the effect of omitted variables. α_{it} represents both the coefficients and slope parameters.

DATA AND MODEL SPECIFICATION

From equation 4 above, the performance measure generally used in empirical studies are net profits, the rate of return on asset (ROA), rate of return on capital (ROC) and rate of return on equity (ROE). However, in this study we make use of pre-tax ROA as measures of pharmaceutical firms' performance. Pre-tax ROA is suitable in this study to proxy pharmaceutical firms' performance since it helps to eliminate the effect of government tax policy on the industry's performance. The model to be estimated in this study is given thus:

$$Perf_{it} = \alpha_{10} + \alpha_{11}\text{MS}_{it} + \alpha_{12}\text{HHI}_{it} + \alpha_{13}\text{EPS}_{it} + \alpha_{14}\text{OE} + v_{it}. \qquad (5)$$

The explanatory variables which enter into the model adopted in the study include: MS is the industry's market share and it is measured by dividing the turnover of each firm by the total turnover of all firms. The a priori expectation is that market share is expected to have positive effect on the industry's performance, HHI is the industry's Herfindahl-Hirschman Index of market concentration and it is calculated by summing the square market shares for the six pharmaceutical firms that feature in the study, EPS is the industry's earnings per share which is expected to positively influence performance and OE is operational efficiency. Both EPS and OE are control variables in the study. The subscript i and t are used to denote the number of firms and the number of years respectively, while v represents the white noise error term. The expectation is that market share and operational efficiency will either positively or negatively impact performance of the pharmaceutical industry which is what the study aims to determine.

SAMPLE IDENTIFICATION AND DATA SOURCE

This study uses six pharmaceutical firms including Eko Corp. plc, Evans Medical plc, May and Baker Nigeria plc, Morrison Industries plc, Neimeth International Pharmacy Plc and Pharma-Deko Plc in the period 1996 to 2010 as samples. All data of empirical tests come from the Nigerian Stock Exchange Statistical Yearbook. The choice of these six firms is due to the

availability of data as only the six firms have sufficient data up to date across the study period.

Empirical Result

In this section, the study presents the empirical result which shows the effect of market share, market concentration, earnings per share and operational efficiency on the performance of the pharmaceutical industry in Nigeria.

The reported fixed effect in table 1 indicates that while holding all explanatory variables constant, the pharmaceutical industry's performance (measured by pre-tax return on asset) is 0.1139. The result also shows that market share as well as organizational efficiency is inversely related to the performance of pharmaceutical industries in Nigeria. This is owing to the fact that a 1% increase in market share will decrease the industry's performance by about 99%. In the same vein, a 1% increase in organizational efficiency will cause the market's performance to decline by about 25%. This is, however, in contradiction to our apriori expectation, where we expect both market share and organizational efficiency to positively influence pharmaceutical firms' performance. Also, the Herfindahl-Hirschman Index (HHI) as well as earnings per share conformed to apriori expectation. This is because we assume that earnings per share should contribute positively to performance while market concentration (HHI) can either have

TABLE 1   Panel Result of Pharmaceutical Firms' Performance

Regressors	Fixed effect		Random effect	
Constant	0.1139**	(0.0000)	1.7499**	(0.0000)
MS	−0.9934**	(0.0000)	−0.8332	(0.7217)
HHI	0.2887**	(0.0000)	0.5035**	(0.0020)
EPS	0.0219**	(0.0080)	0.0345**	(0.0000)
OE	−0.2533*	(0.0120)	−1.3795**	(0.0000)
R squared	0.6266		0.5514	
Adjusted *R* squared	0.6012		0.5132	
F-statistics	4.8147		16.8072	
Probability	0.0000**		0.0000**	
Hausman Test		12.2**	(0.0031)	

NOTES   *t*-statistics in parentheses. ** and * indicate 1% and 5% level of significance. MS – market share, HHI – Herfindahl-Hirschman Index, EPS earnings per share; OE – operational efficiency.

positive or negative influence on performance. A 1% increase in market concentration will cause performance of the pharmaceutical industry to rise by roughly 29%, while a 1% increase in earnings per share will cause performance to rise by almost 2.2% while other explanatory variables are kept constant. From the result, all the explanatory variables are statistically significant at 1% level with the exception of organizational efficiency, which is statistically significant at 5% level. The *R*-squared value of 0.6266 also showed that the model is a good fit, as all explanatory variables joint explained 62.66% of variation in pharmaceutical industry's performance in Nigeria.

In the same vein, the reported random effect indicates that while holding all explanatory variables constant, the pharmaceutical industry's performance (measured by pre-tax return on asset) is 1.7499. The result also shows that market share as well as organizational efficiency is inversely related to the performance of pharmaceutical industries in Nigeria confirming the fixed effect result. This is owing to the fact that a 1% increase in market share will decrease the industry's performance by about 83%. Similarly, a 1% increase in organizational efficiency will cause the market's performance to decline by about 138% as against our apriori expectation where we expect both market share and organizational efficiency to positively influence pharmaceutical firms' performance. The Herfindahl-Hirschman Index (HHI) as well as earnings per share also conformed to apriori expectation as in the fixed effect case. A 1% increase in market concentration (proxied by HHI) will cause performance of the pharmaceutical industry to rise by roughly 50%, while a 1% increase in earnings per share will cause performance to rise by almost 3.5% while keeping all other variables constant. From the random effect result however, market share is not statistically significant in the model, but all other explanatory variables are statistically significant at 1% level. The *R*-squared value of 0.5514 also showed that the model is a good fit as all explanatory variables jointly accounted for about 55% variation in the pharmaceutical industry's performance in Nigeria. However, the Hausman test statistics value of 12.2 which is significant means that the study favours the fixed effect model as the most appropriate.

Conclusion and Policy Recommendation

Industrial economics can help firms understand e.g. levels of capacity, output and prices, socially acceptable performance standards, differentiation in the market, investments, desired levels of concentration and

efficiency etc. The empirical results (both from fixed and random effects) interpreted in this study simply indicates that the efficiency hypothesis does not hold in the case of pharmaceutical industry in Nigeria over the course of the study. This is clear from the result as both organizational efficiency and market share, both of which are efficiency measures in this study, tend to impact negatively the industry's performance. More so, the result of the pharmaceutical firms' concentration measure revealed that a high concentration of firms operating in the market will translate into better performance, be it in terms of profitability, return on assets, or both. Hence, this will translate into a better performance of the industry from social point of view, thereby leading to the production of quality drugs and the eradication of fake drugs' circulation in the industry. We can safely infer from this also that Nigeria's pharmaceutical industry's structure determined its performance and so we conclude that within the Nigerian pharmaceutical industry context, over the period of study, that structure-conduct-performance paradigm holds sway (Mason 1939; 1957; Bain 1951; 1959) as against the efficiency approach of Adhikari (2005), which is the study's contribution to knowledge. We can say in a sense that the result of this study supports the structure-performance hypothesis of Mason (1939) and Bain (1959) as against efficiency-performance hypothesis of Adhikari (2005). However, the result is in direct contradiction to Qichang, Zongling, and Dan (2012), which found that neither structure-conduct-performance nor the efficient structure hypotheses hold in Chinese banking industry.

Consequent upon the result of this study, we recommend that necessary policy options be put in place by the Federal Ministry of Health to enhance the capacity of local pharmaceutical firms in producing the desired quality and quantity drugs needed in the country to address the current practice where the country loses over ₦1.5 billion annually to the importation of Active Pharmaceutical Ingredients (APIS), which is sequel to the fact that almost 90% of domestically consumed drugs are imported from abroad (*Business Day* 2014). In the same vein, to improve efficiency of the industry, efforts should be geared towards eradicating sharp practices (importation of fake drugs) that was the hallmark of the industry before the Late Dr. Dora Akunyili took over as the Director General of National Agency for Food and Drug Administration and Control (NAF-DAC) in April 2001. Akunyili's legacy of sanitizing the industry should be strictly adhered to and even improved upon. The environment under which pharmaceutical firms operate in Nigeria should be made more

conducive. In summary, more efforts should be geared towards having regular supply of electricity, which has been the bane of industrialization in Nigeria (Isola 2005).

Notes

1 Despite Nigeria's dominance within the ECOWAS sub-region in drug manufacturing, Nigeria's quest to become self-sufficient in drug production is bleak as it loses over N1.5 billion annually to the importation of Active Pharmaceutical Ingredients (APIS), raw materials used in finished pharmaceutical products which have direct effect in the diagnosis, treatment or prevention of diseases from India, United States of America, Germany, etc, experts have said. While pharmaceutical companies in Nigeria do not locally manufacture APIS such as Paracetamol powder, Ampicillin dry powder etc, the non-availability of APIS would significantly cripple the nation's pharmaceutical sector. Reports have it that Nigeria imports over 85 percent of its needs of APIS as it does not have adequate capacity to produce APIS, with no commitment by the Government to encourage investors in this vital sector of the economy (*Business Day* 2014).

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UNIDO. 2011. *Nigeria Pharmaceutical Sector Profile.* Vienna: United Nations Industrial Development Organization.

MNES *from Poland:*
A Review of Extant Research

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The objective of the present paper is to provide a review of the current state of empirical research on emerging multinational enterprises (EMNES) carried out in Poland. The review of empirical studies reveals that first exploratory efforts have already been undertaken to unbundle the motivations, geographic patterns, modes and resource advantages. Firm-specific resources are an important determinant of internationalisation and its performance outcomes. Major FDI projects of Polish firms are located in neighbouring countries, which expresses the still limited scope of emerging MNES' international operations. Present research predominantly recurs to descriptive statistics, thus not contributing to the understanding of relationships between motives, strategies and outcomes of Polish EMNES. Future studies should rely on larger samples and more refined research designs to enable normative contributions, particularly in relation to the competitiveness effects of foreign expansion.

Key Words: foreign direct investment, literature review, emerging
   multinationals, Central and Eastern Europe
JEL Classification: F21, F23

Introduction

'The rise of multinationals from emerging economies has been continuously redefining the scene of international business' (Marinov and Marinova 2014, 1). In fact, an ongoing debate in recent international business research has revolved around the distinct character of these firms' internationalisation patterns and their outcomes for home and host economies (Luo and Tung 2007). These firms' internationalisation patterns have raised the question as to the ability of extant international business theory to explain investment motives, resource endowments, location choices, entry modes (Jormanainen and Koveshnikov 2012). In fact, the so called emerging MNES (EMNES) already embarked on their international activities as early as in the 1970s (Dunning, Kim and Park 2008). However, more striking is the increasing growth of this phenomenon, which has rapidly accelerated in the 2000s, considerably faster than the

expansion of developed country MNES. The emergence of a new generation of corporate players in the global economy, as evidenced by both significant greenfield projects and spectacular acquisition deals in developed countries by firms originating from emerging markets, has legitimately raised attention not only of academics, but likewise of managers, policy makers and societies, in general (Jormanainen and Kovershnikov 2012).

Nonetheless, while there has been a dynamically growing stream of research related to Asian economies and firms, studies devoted to the expansion of businesses originating from the region of Central and Eastern Europe (CEE) have remained comparably scarce (Rugraff 2010). A significant part of this research adopts a macroeconomic view with focus on a particular economy or sector therein (e.g. Antalóczy and Éltető 2003), or comparison of outward foreign direct investment (FDI) from several CEE countries (e.g. Radło and Sass 2012; Svetličič and Jaklič 2003). One can also identify studies reconciling macro-level and firm-level analysis (Gorynia et al. 2012; Rugraff 2010; Zemplinerová 2012). These studies indicate that OFDI from the CEE region only emerged in the late 1990s and took off 2000s, although it is still low as compared to inward FDI. Furthermore, outward FDI by CEE firms shows a geographic concentration on Europe, particularly on neighbouring countries. Indeed, Rugraff (2010) indicates that a small number of large MNE's account for the majority of OFDI from the Czech Republic, Hungary, Poland and Slovenia in neighbouring countries. Zemplinerová (2012) finds for Czech companies that while they engage in OFDI for multiple motives, market- and efficiency-seeking motives predominate.

There is a clear gap in terms of firm-level studies on OFDI from CEE, most of which focus on emerging multinationals (Jaklič and Svetličič 2009; Kaliszuk and Wancio 2013; Kuznetsov 2013; Sass and Kovacs 2012). Existing evidence points to rapid growth of these EMNES, while their size is negligible as compared to advanced country MNES, and their scope of foreign operations remains confined to their home-country region. Predominant FDI motives pertain to the search of new markets, followed by resource- and efficiency-seeking motives. In this context it can be hypothesised that studies focusing on Polish multinationals should reveal similar patterns in terms of geographic patterns, motives for foreign operations, their modes and consequences. While, as it will be argued in the subsequent sections, Poland's current positioning in country classifications remains ambiguous, its development level and relatively short participation

in the global economy imply that the contents of the ongoing debate on EMNES internationalisation are highly relevant for discussing the specific nature of foreign expansion undertaken by Polish firms.

Therefore, the objective of this paper is to provide a review of the current state of academic research on the international expansion of Polish multinationals, with particular focus on FDI as the most advanced entry mode, whose determinants and strategies have been the most important feature of the debate on emerging multinationals. Thereby, multinationals are understood in line with the early MNE definition of Dunning (1974, 13), according to which multinational corporations are firms that 'own and control income-generating assets in more than one country'. While this definition may seem overly simplistic given the organisational and strategic complexity of contemporary MNES, it allows to embrace firms from emerging markets, which can be considered as 'infant MNES' (Ramamurti 2010, p. 420). One can note that the term of FDI is used here a proxy for entry modes of internationally operating firms on the one hand, and for the consequence thereof which is the existence of an MNE, on the other. Accordingly, FDI is not used in the mere macro-level meaning of capital flows between countries.

The remainder of the paper is organised as follows. First of all, the background of Polish outward FDI at the country level is introduced to provide a context for the review of extant studies on multinationals from Poland. The latter is particularly concerned with the performance implications of undertaking FDI by these latecomer firms, as well their antecedents, which have still received limited scholarly attention. The paper concludes with implications of the current state of research and outlines directions for further enquiry.

Emerging Multinationals from Poland: State of the Art of Current Research

CONTEXT OF POLISH OUTWARD FDI

As the focus of this review is on outward FDI from Poland, it is legitimate to present the specificity of Polish economy's and firms' internationalisation. First, the notion of emerging countries has to be clarified. Hoskisson et al. (2000, 249) define 'an emerging economy' as a country 'that satisfies two criteria: a rapid pace of economic development, and government policies favouring economic liberalization and the adoption of a free-market system'. Transition economies are broadly recognised as

experiencing institutional upheaval as a result of the shift from the centrally planned to a market economy. Thereby, not only political systems, laws, regulations, and financial markets, but also the fundamental values guiding business activities are being replaced, with a gradual predominance of market-based mechanisms over 'state-policed firms', limiting opportunistic behaviour (Roth and Kostova 2003, 315). However, clear-cut country classifications are burdened with important limitations. In fact, there are disparities between countries from one region, for instance within the CEE region, in terms of both economic development and the advancement of the transition process.

According to UNCTAD (2013), Poland and other EU-members from the CEE belong to 'developed economies', as opposed to 'developing economies'. In a similar vein, the World Bank (see http://data.worldbank .org/news/new-country-classifications) splits countries in categories delimited by GNI per capita.[1] Poland is classified as a 'high income country', although it jumps up from the 'upper middle income' level by a marginal amount (see http://data.worldbank.org/indicator/NY.GDP.PCAP.CD).[2] The OECD distinguishes its 34 members (in 2015), which include the so called G7 countries, as well as other countries, both developed and emerging (see http://www.oecd.org/about/membersandpartners). The classification of the IMF (see http://www.imf.org/external/pubs/ft/weo /2013/01/weodata/groups.htm) is another case illuminating that regional divisions do not necessarily correlate with the economic development category. Hereby, Poland ranks among CEE emerging markets. This position of Poland is also confirmed when the institutional dimension is taken into consideration. The MSCI Market Classification Framework (see http://www.msci.com/products/indices/market_classification.html) uses the criteria of economic development, size and liquidity, as well as market accessibility in order to assess investment opportunities. Poland, the Czech Republic, Russia and Hungary ranked as emerging markets, while other CEE, CIS and Southern European countries – as frontier markets.[3] This reflects the fact that certain sectors of the economy, particularly those related to advanced services such as financial intermediation, are still under development. In light of the quoted definitions and international classifications, Poland can be considered as an 'advanced emerging market', in line with some recent CEE studies (Gorynia et al. 2014a; 2014b; Obłój and Wąsowska 2012).

Poland has systematically emerged as a leading source of FDI from the CEE[4] region, increasing its share from 9% to 34% in the outward FDI

stocks between 1990 and 2012. At the same time, it must be acknowledged that Poland's share in global outward FDI stocks has remained negligible, amounting to 0.005% in 1990, 0.012% in 2000 and 0.244% in 2012, respectively (UNCTAD 2013). However, a more meaningful assessment of Polish outward FDI requires a more detailed analysis of its geographical and sectoral structure. The available macro- and mesoeconomic data related to the structure of Polish outward FDI lead to the formulation of several observations. First, Polish outward FDI has systematically grown in the period 1996–2012,[5] with a stagnation arguably related to the economic downturn of 2008–2009. Second, as far as the geographic structure of outward FDI is concerned, Europe has consistently remained the fundamental destination for Polish firms throughout the last decade, whereby its share in Polish outward FDI has increased from about 74% in 2002 to 93% in 2012, which can be – at least to some extent – be traced down to Poland's systematic integration with European institutions (Trąpczyński 2014). European locations include both institutionally and economically more and less developed countries as compared to Poland, i.e. both EU-12 countries and emerging markets in Eastern and Southern Europe (such as notably Russian Federation or the Ukraine).

In terms of sectoral structure, a clear rise in the significance of service investments (currently about 65% of outward FDI stocks) can be witnessed. These include wholesale and retail trade and repairs, transportation and storage, accommodation and food services, information and communication, as well as financial and insurance activities (Trąpczyński 2015). Amongst industry sectors, manufacturing has clearly prevailed, followed by construction and mining. In general, the structure of Polish OFDI increasingly resembles the structure of activity sectors typical of advanced economies. However, the dominance of services among foreign affiliates could to a certain extent be explained by the fact that many of them engage in sales and marketing activities for their Polish parent firms.

EMPIRICAL STUDIES ON POLISH EMERGING MULTINATIONALS: OUTLINE OF FINDINGS

In order to identify extant studies on MNES from Poland,[6] academic papers from publishers listed in ESBCO, ProQuest and JSTOR were searched. This step was extended by adding books and printed journals, which account for a significant part of publications by Polish authors dealing with the analysed issues. The keywords used included 'multinational

enterprises', 'foreign direct investment' and 'foreign expansion', as well as their equivalents in Polish. The identified 44 publications were categorised in terms of their predominant research questions and methods. In order to provide an overview for the ensuing section, figure 1 was devised to represent visually major aspects of MNE operations studied by current research. Based on the content analysis, the major aspects of MNE operations were identified and represented by oval fields in figure 1, while the relationships between them are depicted by arrows linking oval fields. Hereby, contributions placed within a given field are predominantly descriptive and concentrate on the scale and types of the given aspect of MNE operations, whereas contributions assigned to the arrows are more normative, focusing on the effects of one type of variables on another one. The findings of the review are described in the ensuing paragraphs and summarised in table 1.

Extant research can be divided into studies providing descriptive analyses of each aspect related to FDI, as well as those focused on the exploration of relationships between different dimensions, thus being more normative. It is the latter that the ensuing section will concentrate on. In terms of FDI locations, empirical research on FDI undertaken by Polish firms consistently reveals a concentration on neighbouring economies (Rosati and Wilinski 2003). Obłój and Wąsowska (2012) investigated the connection between host-country determinants and the level of Polish outward investment to these locations. They found that market size and economic growth are the most influential variables, with a lesser role of labour costs. This finding remains coherent with other reviewed studies (e.g. Czaplewski and Wiśniewska 2007; Karpińska-Mizielińska and Smuga 2007). Moreover, these authors' findings imply that although geographic distance is perceived as a relevant barrier to FDI, psychic distance is not relevant for location decisions, since the bulk of investments has been focused on culturally proximate CEE countries. The same marginal impact could be stated for political risk specific to the region (Obłój and Wąsowska 2012). On the other hand, Zdziarski (2011) found that the fact that a host country shares the historical legacy of economic and political transformation with Poland leads to a more significant FDI clustering of Polish firms. An interesting finding is related to the fact that location determinants vary across locations at a different level of institutional development. Jaworek, Szałucka and Szóstek (2009) find that while access to new markets, proximity of host countries and their market growth matter to investors selecting EU-15 and EU-12 countries, the evasion of trade

barriers gains on importance in case of non-EU CEE countries. Moreover, resource-enhancing investments took place more frequently in EU-15 countries than others. Likewise, while barriers to FDI are mostly related to saturated markets, high competitiveness of foreign rivals in EU-15 and EU-12 countries, they comprised excessive bureaucracy, corruption and instability of legal regulations in non-EU CEE locations (p. 54–6). In the same vein, Jaworek (2013) found that market-seeking was a major motive for outward FDI, while other motives were found to be contingent on the level of economic development of the foreign market. A similar interrelationship was observed in the qualitative study of Gorynia et al. (2015b). Moreover, a relationship between the motives and modes of FDI was found, in that strategic asset-seeking FDI was carried out in the form of acquisitions, while efficiency-seeking investments rather took the form of greenfield investment (Gorynia et al. 2014a; 2014b). In terms of internationalisation paths and the character of FDI as opposed to received theory, there have been few attempts at investigating Polish outward FDI from this perspective. Previous studies have suggested a gradual expansion pattern, whereby exports precede FDI in a gradual internationalisation pattern (Gołębiowski and Witek-Hajduk 2007; Śliwiński 2012a). Indeed, Witek-Hajduk (2010) found evidence for the sequential internationalisation pattern, whereby for 70% of firms EU-15 countries were the first foreign markets, while export was the first foreign entry mode. However, on the other hand Jarosiński (2013) identifies born global firms in Poland, which follow accelerated internationalisation paths.

While Polish firms have been argued to possess certain marketing, managerial and organisational skills which can be leveraged in foreign markets (Gorynia et al. 2014a; 2014b), they have also been found to be limited in their financial potential or foreign market knowledge (Karpińska-Mizielińska and Smuga 2007). In general, there is no unanimity regarding the key resources of Polish firms, which can be effectively exploited in their internationalisation, particularly via FDI. Pierścionek and Jurek-Stępień (2006) found that the main resources leveraged by Polish firms in the internationalisation process include relationships with customers, competitive delivery times, product brand and reputation, as well as lower price at a similar quality. Moreover, the main sources of competitive advantage were related to labour costs in Poland, the ability to learn customer preferences, a careful choice of expansion strategy and its subsequent flexibility, the ability to absorb a new technology, or the possession of an own technology. Rosati and Wiliński (2003) found

that competitive advantage of the foreign affiliates was determined by technology, marketing and organisation resources. However, other studies also indicate that the value and applicability of resources is context-dependent (Witek-Hajduk 2010). For instance, in EU-15 countries such resources as technology, unique products, product quality, reputation, etc. are more essential for firm competitiveness. Moreover, Gorynia et al. (2014a; 2014b) found that firms with a major FDI project in non-EU Eastern European countries claimed prior experience to be among their major advantages in entering these markets.

As for the impact of FDI on firm competitiveness, the related research has predominantly recurred to descriptive statistics rather than econometric hypotheses testing, thus extant conclusions can only be treated as preliminary indications of possible relationships. In regards to the effect of FDI on firm resources, Szałucka (2009) noted that it was mostly moderate. This finding remains in accordance with the predominant market-seeking orientation of Polish outward FDI, which is to a lesser extent driven by asset-augmenting premises. Similar results were obtained in relation to the impact of FDI on the competitive position, or performance of the parent firm. In one of the first studies of Polish FDI, Rosati and Wiliński (2003) observed only a moderate increase in exports, market share and sales volume increase due to FDI. The influence of an increasing number of FDI projects on MNE performance still remains ambiguous. While Ratajczak-Mrozek, Dymitrowski and Małys (2011) observed higher performance of firms using FDI or a combination of internationalisation modes over those focused only on exports, the study by KPMG (2010) points to a higher profitability of exporters as opposed to outward investors. Likewise, Doryń (2011) finds an inverted U-shaped relationship between internationalisation degree and financial performance. Nonetheless, this relationship still requires further research efforts, since attempts at its exploration have mostly recurred to descriptive survey items, which limits the value of obtained outcomes.

Conclusions and Directions for Further Research

The specificity of outward FDI from Poland as an advanced emerging country has to be interpreted carefully. In several aspects related to internationalisation via FDI, Polish firms behave in line with their peers from advanced economies. Firm-specific resources are an important determinant of internationalisation and its performance outcomes. Major FDI projects of Polish firms are located in neighbouring countries, which
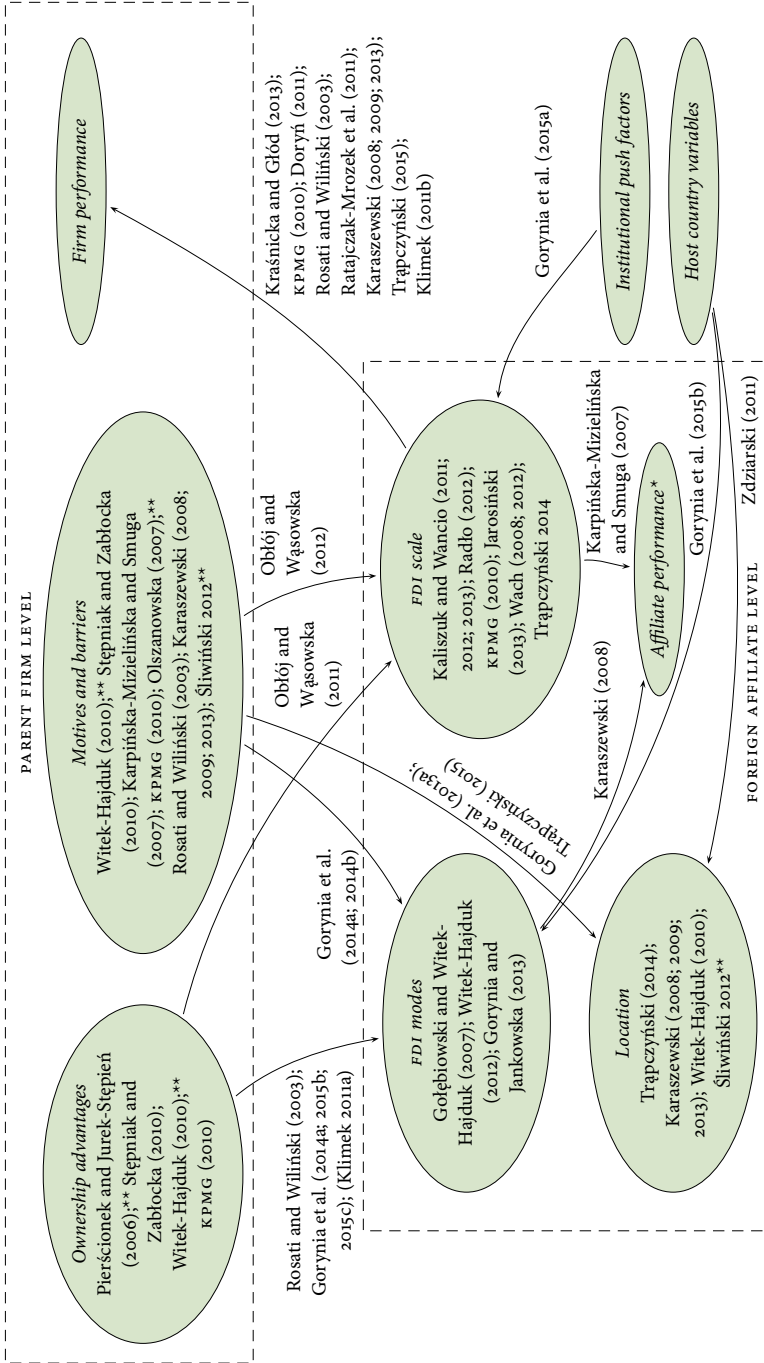
FIGURE 1 Studied Contents and Relationships in Empirical Research on Polish Outward FDI (* studies focused on firm resources; ** findings related to internationalisation in general, not only FDI; adapted from Trąpczyński 2016)[7]

TABLE 1 Overview of Empirical Research on Polish Multinationals

Study	Constructs	Sample	Method	Findings
Witek-Hajduk (2010)	Ownership advantages; Motives & Barriers; Location	257 medium and large firms from electromechanical, foods, and chemicals, Polish ownership	Quantitative; descriptive statistics	Internationalisation motives: mainly cheaper sourcing, EU accession, managerial experience; Resources: technology in EU-15 more relevant than in Eastern Europe, conversely for local market knowledge; Entry sequence: for 70% of firms EU-15 were first markets, export as first mode.
KPMG (2010)	Ownership advantages; Motives & Barriers; FDI Scale; FDI Scale → Firm performance	112 manufacturing firms, 77% over 200 employees	Quantitative; descriptive statistics	Main internationalisation motive – sales increase; Main source of competitiveness abroad – high quality of products, Average 38% share of exports; Internationalisation modes: 88% export, 25% sales subsidiaries, 18% production subsidiaries, 4% JV; Main markets: Germany, Ukraine, Czech; Main internationalisation barrier: financing Impact on parent performance: exporters display 24% return on invest, 6.5% higher than domestic and 7% higher than FDI.
Pierścionek and Jurek-Stępień (2006)	Ownership advantages	72 Polish firms selling to EU markets	Quantitative; descriptive statistics	Most crucial resources: relationships with customers, delivery time, product brand and reputation, lower price at similar quality; Sources of competitive advantage: labour costs in Poland, learning of customer preferences, careful choice of expansion strategy and its flexibility, ability of learning a new technology; own technology.
Stępniak and Zabłocka (2010)	Ownership advantages; Motives & Barriers	17 exporters from the Pomorskie region	Quantitative; descriptive statistics	FDI determinants: market size, market growth, market proximity; Competitive advantage abroad: price, quality, brand.
Karpińska-Mizielińska and Smuga (2007)	Motives & Barriers	40 manufacturing firms (10 investors and 30 potential investors), 70% privately-owned, 97% large firms	Quantitative; descriptive statistics	FDI motives: market growth, large export to the target market, lower costs; Main barriers: state support measures, financial means, lack of market knowledge, risk of low or no returns, competition intensity; FDI outcomes – cost reduction, business diversification, sales increase, market position.

Olszanowska (2007)	Motives & Barriers	100 Poland-based firms operating abroad	Quantitative; descriptive statistics	Internationalisation motives: revenue increase, market size, production scale increase.
Karaszewski (2008; 2009)	Motives & Barriers; Location; FDI Scale → Firm performance	102 Polish firms, 40% manufacturing, 70% Polish-owned	Quantitative; descriptive statistics	FDI motives: new markets, market proximity, market growth, yet relevance depends on economic development of location; FDI barriers: saturated market, high competitiveness of foreign rivals (in EU-15 and EU-12 countries), excessive bureaucracy, corruption, instability of legal regulations (in non-EU CEE); Highest fulfilment of FDI expectations: in terms of sales growth and firm value, lower in profitability and firm resources, cost reduction; Parent resource applicability in the host-country dependent on location (highest in EU-12 and non-EU CEE countries).
Karaszewski (2013)	Motives & Barriers; Location; FDI Scale → Firm performance	64 firms with 279 foreign affiliates, 40% trade only, 30% service only, 5% production only, 62% Polish-owned	Quantitative; descriptive statistics	FDI motives: new markets, proximity, growth, yet dependence on economic level of location; FDI barriers: saturated market, high competitiveness of foreign rivals (in EU-15 and EU-12), excessive bureaucracy, corruption, instability of legal regulations (in non-EU CEE).
Rosati and Wiliński (2003)	Motives & Barriers; Ownership advantages → FDI modes; FDI Scale → Firm performance	27 manufacturing firms, 38% manufacturing, 62% service, 56% purely Polish, 71% medium and large	Quantitative; descriptive statistics	FDI motives: local market, low cost of manpower, strategic assets; FDI barriers: finance, qualified personnel, information, barriers in host country; Determinants of affiliate competitive advantage: technology; marketing, organisation; Outcomes for parent: moderate increase of exports, marginal effect on market share and total sales, negligible effect on employment.

TABLE 1   *Continued from the previous page*

Śliwiński (2012)	Motives & Barriers; Location	32 fast growing firms based in Poland (500% revenue growth in 10 years), 63% small and medium	Qualitative-quantitative; multiple case studies, descriptive statistics	19 out of 32 expanded to EU markets, 10 to Asia; 7 firms own representative offices, 4 firms own production subsidiaries; 15 firms started expansion by exporting, 1 by JV, 2 by acquisitions; Internationalisation motives: sales increase, international market share; Internal drivers: leader determination, experience in foreign markets; External drivers: high internal demand and purchasing power, low real trade barriers, low level of competition.
Kaliszuk and Wancio (2011; 2012; 2013)	FDI scale	19, 25 and 30 leading Polish multinationals (secondary data)	Quantitative; descriptive statistics	European focus of the bulk of OFDI; Most preferred locations: Germany, the Czech Republic, Slovakia, Lithuania and Ukraine; Domination of market-seeking; Late start of Polish OFDI: 20 of the top 30 MNES set up their first foreign affiliate in 2000 or later.
Radło (2012)	FDI scale	case studies of 3 Polish outward investors (secondary data)	Qualitative-quantitative; case studies, desc. stat.	Focus on European markets; Main FDI motives: increase of market power and market access; Core competencies: know-how in developing specialised IT systems, clothing design, and developing branded food and drink products.
Jarosiński (2013)	FDI scale	241 firms from Poland; 121 medium, 120 large firms	Quantitative; descriptive statistics	Sales subsidiary 13%, sales/production subsidiary 6%, production subsidiary 4% (as opposed to 86% exports).
Wach (2008; 2012)	FDI scale	323 Polish firms, 95 SMES, 71% services	Quantitative; descriptive statistics	8.2% of studied firms possessed a branch within EU (6.9% beyond EU); 2.1% subsidiary within EU (2.3% beyond EU).
Gołębiowski and Witek-Hajduk (2007)	FDI modes	133 large and medium firms from food & light manufacturing industry, transport services	Quantitative; descriptive statistics	*In 2005 after Poland's accession to the EU* – Sales subsidiaries: 28 firms in the EU, 14 in Russia, 11 in other markets; Production subsidiaries: 14 in the EU, 5 in Russia, 7 in other markets; Production/sales subsidiaries –13 in the EU, 11 in Russia, 8 in others; Barriers: technology, lack of reputation, financing and strong brands.

Gorynia and Jankowska (2013)	FDI modes	230 Polish firms, different sectors and sizes	Quantitative; descriptive statistics	Internationalisation modes: In EU markets – greenfield 14%, acquisitions 6%; Other markets – greenfield 11%, acquisitions 5%.
Witek-Hajduk (2012)	FDI modes	244 medium and large firms from electromechanical industry	Quantitative; descriptive statistics	21.7% of studied firms possessed sales joint ventures, 13.5% sales subsidiaries.
Trąpczyński (2014)	Location; FDI scale	98 Polish outward investors	Quantitative; descriptive statistics	Most FDI projects of Polish firms are located in neighbouring countries (both advanced and emerging); most Polish MNEs have limited exposure to FDI (70% have up to 3 foreign affiliates).
Klimek (2011a)	Ownership advantages → FDI modes	50 Polish manufacturing firms	Quantitative; probit model	Larger firms are less likely to conduct greenfield investment; Greenfield is preferable for markets with low competition pressure.
Klimek (2011b)	FDI Scale → Firm performance	51 Polish manufacturing MNEs	Quantitative; mult. logit regressions	More productive, older and larger firms are more likely to get involved in FDI.
Gorynia et al. (2014b)	Ownership advantages → FDI modes	10 Polish outward investors, different sizes and industries	Qualitative; multiple case study analysis	Mainly regional focus of their international activities; Firms exploit their business experience more easily in equally or less institutionally developed markets; Firms expanded sequentially by exports to target markets before FDI.
Gorynia et al. (2014a; 2015b)	Ownership advantages → FDI modes; Motives & Barriers → FDI modes	10 Polish outward investors, different sizes and industries	Qualitative; multiple case study analysis	Main FDI motives: market-seeking, followed by efficiency-seeking and strategic asset-seeking motives; Strategic asset-seeking increases the propensity to choose acquisition; Market- and efficiency-seeking motives increases the propensity to choose greenfield investment as the FDI mode.

TABLE 1　*Continued from the previous page*

Gorynia et al. (2015c)	Ownership advantages → FDI modes	60 Polish outward investors, different sizes and industries	Quantitative; logistic regression models	Leading role of market-seeking motives, followed by efficiency-seeking and strategic asset-seeking; Increase of previous host-country exposure, as well as host-country market attractiveness, favours the choice of greenfield mode; Greenfield operations tend to be located in politically stable markets.
Gorynia et al. (2013a)	Motives & Barriers → Location	10 Polish outward investors, different sizes and industries	Qualitative; multiple case study analysis	Dominance of strategic asset-seeking motives increases the propensity to invest in more developed countries; The role of host-country characteristics has a higher influence on location choice than investing firm characteristics in less developed countries, and vice versa in more developed countries.
Obłój and Wąsowska (2012)	Motives & Barriers → FDI scale	OFDI stocks in 53 countries (NBP data)	Quantitative; multiple regression models	Market size, labour costs, geographic distance are significant determinants of Polish OFDI.
Gorynia et al. (2015a)	Institutional push factors → FDI scale	Polish OFDI support measures	Qualitative; content analysis of secondary data	OFDI-dedicated support measures still remain relatively scarce, with responsibilities spread over several institutions.
Doryń (2011)	FDI Scale → Firm performance	43 listed firms; electromechanical, chemical, pharmaceutical, plastic sectors	Quantitative; multinomial modelling	U-shaped relationship between internationalisation and performance.
Kraśnicka and Głód (2013)	FDI Scale → Firm performance	100 SMEs, trade 60%, services 13%, production 10%, construction 8%	Quantitative; descriptive statistics	Highest evaluation of performance for firms with branches; Higher performance for born globals than non-born globals.

Source	Variables	Method	Sample	Findings
Ratajczak-Mrozek, Dymitrowski and Małys (2011)	FDI Scale → Firm performance	Quantitative; descriptive statistics	124 firms, 91% SMEs, 73% with domestic capital, 88% private	Firms using FDI outperform others in market share and sales volume, while those combining different entry modes display highest ROI.
Trąpczyński (2015)	FDI Scale → Firm performance; Motives & Barriers → Location	Quantitative; descriptive statistics	100 Polish outward investors in the quantitative study + 6 case studies	Best MNE performance for large firms; no performance differences depending on the number of FDI projects per firm. Emerging markets entered due to efficiency-seeking considerations, advanced economies due to the search for strategic assets, emerging markets of Eastern Europe perceived as more different to the home country than developed markets from the EU; main barriers in advanced countries related to competition intensity, while in emerging markets – to economic and political risks.
Gorynia and Trąpczyński (2014)	Host-country variables → Affiliate performance	Quantitative; linear regression models	91 Polish outward investors, different sizes and industries	Intangible resources and FDI experience, positive institutional differences have positive impact on FDI performance; Magnitude of distance is positively related to FDI performance.
Obłój and Wąsowska (2011)	Ownership advantages → FDI Scale	Quantitative; multiple regression models	202 non-financial firms listed at the Warsaw Stock Exchange (secondary data)	Foreign ownership is positively related to scope of internationalisation (number of countries in which the company has foreign subsidiaries); Individual ownership is positively related to the degree of internationalisation of sales.
Zdziarski (2011)	Host-country variables → Location	Quantitative; explanatory network analysis	All non-financial firms listed at the Warsaw Stock Exchange 2007–2009 (secondary data)	Geographic distance and historical legacy of transformation explain FDI clustering in foreign countries.

NOTES * Theory listed only if used for generating hypotheses, not for descriptive purposes. ** Primary data, if not specified otherwise.

expresses the still limited scope of emerging MNEs' international operations. In terms of FDI motives and the role of foreign affiliates for parent firm strategy, while previous findings in the context of Central and Eastern Europe on the prevalence of market-seeking motives in outward FDI were not directly supported at the level of firm declarations about their investment objectives, market attractiveness turns out to be a significant determinant of affiliate performance. Conversely, the specificity of Polish FDI as compared particularly to the expansion of Asian multinationals, pertains to a lesser role of strategic asset-seeking FDI.

The review of empirical studies devoted to Polish outward FDI reveals that first exploratory efforts have already been undertaken to unbundle the motivations, geographic patterns, modes and resource advantages. The density of studies allocated to individual fields in figure 1 illustrates the relative abundance of descriptive contributions. However, even within particular aspects studied, there are still inconsistencies. For instance, while several studies point to the increasing relevance of intangible assets for the international competitiveness of Polish firms, others suggest that they still remain laggards, moreover constrained by financing possibilities and deficient market knowledge. On the other hand, the adversity advantage, or the home-grown entrepreneurial ability to do business in countries sharing a similar institutional blueprint, has not been subject of extant research, although they deserve distinct attention.

A certain shortcoming of this review, which hinders the formulation of conclusions in respect to FDI, is that FDI was treated as one of internationalisation modes in many studies, while many questions, e.g. related to foreign expansion motives or locations, refer equally to exports and FDI. Also, a conceptual problem related to previous points in this review is that there have been partial overlaps in studied variables, e.g. barriers to FDI combined internal and external factors, FDI motives combined host-country variables with firm objectives. Hence, there is a risk of misunderstanding what is actually being measured, as well as a potentially reduced comparability of results. These issues should be explicitly addressed in future research projects.

The aforementioned exploratory character of extant research on Polish multinationals is reflected by an overwhelming use of survey methods, whereby analyses mostly concentrated on descriptive statistics. This method might have fallen short of delivering more normative evidence on the relationships between FDI and different competitiveness dimensions. A related problem pertains to the fact that many of the said stud-

ies did not test theory-driven hypotheses, which would allow reaching beyond the present exploratory stage of research and contributing to extant international business theory by enriching it from the perspective of a Central Eastern European emerging market. Given the variety of sub-dimensions within competitive potential and position, for instance, more theory-driven research objectives should allow to detect more detailed relationships.

Accordingly, several of the above weaknesses could be addressed by future studies on this topic. Larger samples could be investigated in order to enable sub-sample analyses to better detect interactions between variables. The role of firm resources, including intangible assets and different types of international experience for affiliate performance could be examined in different host-country contexts. Furthermore, in a broader research design, including firms from both less and more developed home markets, foreign affiliates in an emerging CEE market could be compared in terms of their performance. A frequently discussed characteristic feature of emerging MNE internationalisation, and hence also the related academic debate, is the nature of the ownership structure of the said firms. While Taylor and Nölke (2010) note that a large percentage of Indian outward investors are family conglomerate holdings, Chinese outward FDI is significantly driven by state-owned enterprises owing to a highly regulated OFDI regulatory framework. Research shows that ownership matters for strategic motivations of emerging MNES, such that private firms were found to be rather market seekers, while state-owned enterprises were dominant among investments targeted at new technologies, brands, marketing or other types of know-how. Hence, further research on multinationals from Poland, as well as other CEE countries, could make meaningful contributions by studying strategic particularities of state-owned enterprises as opposed to private ones.

Likewise, government support has been found to positively affect Chinese OFDI (Wang et al. 2012). Governments can in fact impose both restrictions and incentives on international firm operations, as well as introduce policies to establish national champions in selected industry sectors and thus realise a country's strategic objectives. Some scholars suggest that in case of emerging markets the relationship between outward FDI and performance of the home economy might be less evident, which draws attention to the necessity of improving the capabilities of domestic firms and their business environment. Accordingly, more research on the effectiveness of policies supporting outward investors from Poland,

as well as other countries having a similar profile, would provide new evidence that can lead to better grounded and more purposeful policy decisions.

Acknowledgments

Notes

1 Low income: \$1,035 or less; lower middle income: \$1,036 to \$4,085; upper middle income: \$4,086 to \$12,615; high income: \$12,616 or more.

2 Between 2012 and 2013, also the Russian Federation moved to the 'high income' category, although being predominantly considered as an emerging market.

3 Similarly, FTSE assigns Poland to the 'Advanced Emerging' category in terms of, inter alia, market institutions quality, consistency and predictability, stability and market access, while some CEE countries such as Slovenia and Slovakia rank even lower – namely among 'Frontier' markets (see http://www.ftse.com/products/indices/country-classification).

4 CEE countries include EU-10 countries (Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia), and further Eastern and Southern European countries: Albania, Bosnia and Herzegovina, Croatia, Serbia, Montenegro, Macedonia, Armenia, Azerbaijan, Belarus, Kazakhstan, Moldova, Ukraine, Georgia. The Russian Federation was excluded from the analysis due to the significant scale of its OFDI, which is to a large extent driven by investments in natural resources.

5 Comparable data were available only from 1996. The National Bank of Poland is the institution legally responsible for gathering annual data of Polish outward FDI, based on financial reports submitted by the investors. The definition of FDI used by the National Bank of Poland assumes 10% of capital share in the foreign affiliate (but not less than 10,000 euros), which is consistent with the assumptions of this dissertation.

6 The present review is concentrated on studies devoted to FDI. For a broader review of international business research in Poland, please see Puślecki, Staszków and Trąpczyński (2016).

7 The review excludes certain less popular topics, e.g. host-country market risk and attractiveness perception, determinants of strategy adaptation in the host country, or configuration of value chain activities (Witek-Hajduk 2010), or the methods of FDI effectiveness calculation or risk minimisation methods (Karaszewski 2009; 2013).

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Vpliv vladnega dolga, menjalnega tečaja in drugih makro-ekonomskih spremenljivk na bruto domači proizvod na Hrvaškem

Yu Hsing

Z uporabo analize skupnega povpraševanja/skupne ponudbe in osredo-točanjem na četrtletni vzorec med 2000Q4–2015Q4 članek ugotavlja, da je hrvaški bruto domači proizvod (BDP) pozitivno povezan z vladnim dolgom kot odstotkom BDP med 2000Q4–2008Q4, realno cenitvijo kune, realno ceno delnic, realnim nemškim BDP, realno ceno nafte in realnimi dohodki ter da nanj negativno vplivajo vladni dolg kot odstotek BDP med 2009Q4–2015Q4, realne obrestne mere in pričakovane stopnje inflacije. Dinamičen odnos med realnim BDP in vladnim dolgom kot odstotkom BDP kaže na to, da je treba pri zasledovanju ekspanzionistične makronekonomske politike v prihodnosti začeti izvajati finančno disciplino.

Ključne besede: menjalni tečaj, vladni dolg, cena delnic, cena nafte, realni dohodki

Klasifikacija JEL: F31, E62

Managing Global Transitions 14 (3): 223–231

Porast izmenjav med posrednimi in neposrednimi davki v južni Afriki: dokazi iz modela STR

Andrew Phiri

Davčni sistem tvori hrbtenico delovanja južnoafriških fiskalnih avtoritet in nedavno se je pojavilo vprašanje, ali spremembe obstoječe davčne strukture lahko promovirajo gospodarsko rast. Z uporabo četrtletnih podatkov iz 1990Q1 in 2015Q2 je pričujoča študija raziskovala učinke posrednih in neposrednih davkov na južnoafriško gospodarsko rast, pri čemer je uporabljala nedavno oblikovan model enostavnega regresijskega prehoda (model STR). Naše ugotovitve kot optimalnega identificirajo 10,27-odstoten davek pri razmerju posredne davčne rasti, pri čemer so pod to stopnjo posredni davki pozitivno povezani z gospodarsko rastjo, medtem ko so neposredni davki negativno povezani z rastjo. Nad optimalno davčno stopnjo obdavčitev nima nobenega pomembnega odnosa z gospodarsko rastjo. Zato predlagamo, da politiki večjo obremenitev prenesejo na posredne davke, pri čemer poskrbijo, da porazdelitev posrednih davkov pri gospodarski rasti ne preseže 10,27-odstotnega praga.

Ključne besede: neposredni davki, davek na dodatno vrednost (DDV), optimalni davek, gospodarska rast, Južna Afrika, model enostavnega regresijskega prehoda (model STR)
Klasifikacija JEL: C22, C51, H21, H30, O4
Managing Global Transitions 14 (3): 233–250

Določilnice kapitalske strukture majhnih in srednjih podjetij na Hrvaškem

Nataša Šarlija in Martina Harc

Večina raziskav kapitalske strukture temelji na dveh teorijah, teoriji glavnega toka (TOT) in teoriji vrstnega reda (POT). Raziskati želimo, katera teorija deluje bolje v določenih pogojih, in identificirati ključne določilnice, ki vplivajo na kapitalsko strukturo podjetij. Vendar pa v različnih državah kot pomembne identifciramo različne določilnice z nasprotnimi odnosi do finančne moči. Poleg tega je večina drugih raziskav osredotočena na našteta podjetja. Cilj pričujočega članka je analizirati kapitalsko strukturo majhnih in srednjih podjetij na Hrvaškem skozi analizo temeljnih določilnic kapitalske strukture. Raziskava je bila izvedena s pomočjo podatkov 500 hrvaških majhnih in srednjih podjetij v obdobju 2005–2011. Na zbir neuravnoteženih panelnih podatkov nanesemo linearno regresijo. Vpliv določilnic na finančno moč je ocenjen s pomočjo statičnega panelnega modela z naključnim učinkom in s fiksno oceno učinka. Analiziramo štiri glavne določilnice kapitalske strukture: rast, velikost, dobičkonosnost in osnovna sredstva. Rezultati te raziskave podpirajo teorijo vrstnega reda in potrjujejo, da so hrvaška majhna in srednja podjetja primarno financirana iz notranje ustvarjenih sredstev, ki vplivajo na dobičkonosnost, rast, osnovna sredstva in velikost podjetja.

Ključne besede: kapitalska struktura, določilnice kapitalske strukture, teorija glavnega toka, teorija vrstnega reda
Klasifikacija JEL: C23, C51, F36, G32
Managing Global Transitions 14 (3): 251–266

Določilnice zmogljivosti farmacevtske industrije v Nigeriji

Wakeel A. Isola in Ekundayo Peter Mesagan

Pričujoča študija se osredotoča na odnos med strukturo tržišča, učinkovitostjo in zmogljivostjo nigerijske farmacevtske industrije. Za določitev učinkovitosti industrije uporablja tržni delež in operativno učinkovitost, za izmero zmogljivosti premoženjsko davčno napoved, za izmero strukture tržišča Herfindahl-Hirschmanov indeks. Poleg tega so

bili v raziskavi kot nadzorna spremenljivka uporabljeni zaslužki na delež. Podatki so bili pridobljeni preko Nigerian Stock Market Factbook, in sicer za obdobje od leta 1996 do 2010. Pri ocenjevanju podatkov je bila uporabljena tehnika panelno navadnih najmanjših kvadratov. Tekom raziskave so rezultati tako fiksnih kot naključnih učinkov jasno pokazali, da hipoteza učinkovitosti v primeru nigerijske farmacevtske industrije ne drži. Namesto tega so pokazali, da je struktura tista, ki določa zmogljivost. Študija posledično predlaga, da mora zvezno ministrstvo za zdravje vzpostaviti nujne strukture, da bi se povečala zmožnost lokalnih farmacevtskih podjetij za proizvodnjo v državi potrebnih količine in kakovosti zdravil. Predlagali smo tudi, da bi bilo treba trud usmeriti v popolno preprečitev uvoza ponarejenih zdravil v farmacevtski industriji.

Ključne besede: učinkovitost, struktura-postopek-zmogljivost, farmacevtska industrija, Nigerija

Klasifikacija JEL: L1, D4

Managing Global Transitions 14 (3): 267–282

Multinacionalna podjetja (MNES) iz Poljske: pregled obstoječih raziskav
Piotr Trąpczyński

Cilj pričujočega članka je ponuditi pregled trenutnega stanja na Poljskem izvajajočih se empiričnih raziskav nastajajočih multinacionalnih podjetij (EMNES). Pregled empiričnih študij kaže, da so bila prva raziskovalna prizadevanja že izvedena, in sicer z namenom, da razvozljajo motivacije, geografske vzorce, načine delovanja in prednosti glede virov. Za podjetje specifični viri so pomembna določilnica internacionalizacije in učinkov njene zmogljivosti. Glavni FDI projekti poljskih podjetij se nahajajo v sosednjih državah, kar kaže na še vedno omejen razpon mednarodnih operacij nastajajočih MNES. Naša raziskava pretežno ponovi deskriptivno statistiko in kot taka ne prispeva k razumevanju razmerij med motivi, strategijami in učinki poljskih EMNES. Prihodnje študije bi morale temeljiti na večjih vzorcih in bolj izpopolnjenih oblikah raziskav, s čimer bi omogočile normativne prispevke, še posebej v odnosu na tekmovalne učinke tujih širitev.

Ključne besede: neposredne tuje investicije, pregled literature, nastajajoče multinacionalke, srednja in vzhodna Evropa

Klasifikacija JEL: F21, F23

Managing Global Transitions 14 (3): 283–306