$$\ln REV_{it} = \alpha + \beta_1 \ln PF_{it} + \beta_2 \ln PL_{it} + \beta_3 \ln PK_{it} + \gamma_1 \ln RISKASS_{it} + \gamma_2 \ln ASSET_{it} + \gamma_3 \ln CREDIT_{it} + \gamma_4 \ln EQUITY_{it} + \delta_1 \ln GROWTH_t + \delta_2 \ln INFL_t + \varphi D_2 + \varphi D_3 + \cdots + \varphi D_6 + \vartheta_{it}, \quad \text{(i)}$$

Alternatively,

$$\ln REV_{it} = \alpha + \beta_1 \ln PF_{it} + \beta_2 \ln PL_{it} + \beta_3 \ln PK_{it} + \gamma_1 \ln RISKASS_{it} + \gamma_2 \ln ASSET_{it} + \gamma_3 \ln CREDIT_{it} + \gamma_4 \ln EQUITY_{it} + \delta_1 \ln GROWTH_t + \delta_2 \ln INFL_t + \mu_{it} + \vartheta_{it}, \quad \text{(ii)}$$

where subscripts i and t, denoted bank i at year t.

This study therefore estimated a static version of an *H*-statistic for the specified equation i, using a panel fixed-effects[4] approach or least squares dummy variables (LSDV) method. In essence, the fixed-effects approach controlled for heterogeneity at bank-specific level (Fosu, 2013). Further, according to the literature, a fixed-effects model allowed the intercept in the equation to vary cross-sectionally, but not over time (Brooks, 2013: 490), where $\alpha = \alpha_i$ (Claessens & Laeven, 2003). Appendix C provides details of the diagnostic tests (*Hausman test and Wald test*) for the chosen model. An *H*-statistic, therefore, equated to the sum of the coefficients of the unit factor prices of funds, labour and capital expenditure (Molyneux *et al*., 1994; Bikker & Haaf, 2002; Claessens & Laeven, 2003). This was denoted as follows:

$$H = \beta_1 + \beta_2 + \beta_3 \quad \text{(iii)}$$

where β_1 was the coefficient of price of funds, β_2 was the coefficient of price of labour and β_3 was the coefficient of capital expenditure.

3.4.2 Specifying the Panzar-Rosse equation for H2

Since the literature specified that conditions observed in general market equilibrium validated the Panzar-Rosse model (Panzar & Rosse, 1987, Molyneux *et al*., 1994; Bikker & Haaf, 2002; Claessens & Laeven, 2003), some minor re-specification of the model to represent the natural log of the dependent variable *ROA* altered the equation as follows:

$$\ln ROA_{it} = \alpha + \beta_1 \ln PF_{it} + \beta_2 \ln PL_{it} + \beta_3 \ln PK_{it} + \gamma_1 \ln RISKASS_{it} + \gamma_2 \ln ASSET_{it} + \gamma_3 \ln CREDIT_{it} + \gamma_4 \ln EQUITY_{it} + \delta_1 \ln GROWTH_t + \delta_2 \ln INFL_t + \varphi D_2 + \varphi D_3 + \cdots + \varphi D_6 + \vartheta_{it}, \quad \text{(iv)}$$

Alternatively,

$$\ln ROA_{it} = \alpha + \beta_1 \ln PF_{it} + \beta_2 \ln PL_{it} + \beta_3 \ln PK_{it} + \gamma_1 \ln RISKASS_{it} + \gamma_2 \ln ASSET_{it} + \gamma_3 \ln CREDIT_{it} + \gamma_4 \ln EQUITY_{it} + \delta_1 \ln GROWTH_t + \delta_2 \ln INFL_t + \mu_{it} + \vartheta_{it}, \quad \text{(v)}$$

where the dependent variable was specified as ROA´ = ln(1+*ROA*), in order to adjust for negative values of net income (Claessens & Laeven, 2003).

3.4.3 Defining parameters of an E-statistic

This study computed an *E*-statistic to test for equilibrium using a Wald test F-statistic. In this case, the assumption was that the sum of the coefficients of the factor prices of funds, labour and capital expenditure were statistically equivalent to zero. As such, the null was formulated

[4] This study applied the Hausman test to choose a specification between random- and fixed effects. The null hypothesis of random-effect was rejected at the five percent level of significance. A further specification test using the Wald test rejected null that pooled OLS is appropriate, and did not reject the fixed-effect or least squared dummy variables (LSDV) specification.