IMPROVING THE COMPETITIVENESS OF SMALL AND MIDDLE ENTERPRISES (SME) IN DEVELOPING COUNTRIES

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Micro enterprises and small businesses account for the major share of employment in many developing countries. These enterprises thrive because they offer low-income populations opportunities for economic self-sufficiency. During economic crises, micro enterprises and small businesses are often the most resilient, serving as a crucial backbone of the domestic economy. Yet, despite their size and importance, these businesses rarely have access to the savings, credit and payment services provided by banks. Financial services for these 'underserved' businesses have been lacking for several reasons including the high transaction costs and perceived credit risks associated with small loans, and the unreliability of financial information from entrepreneurs that operate outside the formal economy. Consequently, these entrepreneurs must resort to informal channels with little flexibility and high costs.

The role and objective of banking systems in formerly centrally planned economies was totally different from those in market economies. In both Western Europe and North America, banks constituted the principal source of credit for SMEs throughout the 1950s, 1960s, and 1970s until their capital markets developed in the 1980s to offer SME entrepreneurs alternative sources of capital. This was because the banking sector was entirely in private ownership but regulated rigorously albeit prudentially. Central banks did not assume activist roles. Deposit insurance was established by governments as a form of security for bank deposits. Since banks were privately owned and accountable to their shareholders, they sought efficient financial intermediation and profitability as the rationale for their very existence. Banks' credit and intermediation decisions were autonomous as was their risk assumptions. Their lending to SMEs was dictated by their independent policies for profitability and risk diversification and not based on any governmental fiat.

SMEs contribute substantially to a stable economic environment and to the development of the economy. To achieve stable economic development the business of SMEs must be supported. They need especially financial and consulting services which help them to overcome difficulties during the start-up phase or to carry out their normal business activities. Local retail banks are the natural partners for SMEs but they themselves are also facing many changes and challenges on their markets which have an impact on their relationship with SME. This is true for banks in developing as well as in developed countries.

Examples of some of the challenges can be summarized as follows:

1. European banks work in a demanding international and national regulatory environment.

2. SMEs face a very competitive environment due to e.g. the globalization process and new technologies.

3. To achieve economies of scale retail-banks have to standardize and automate the processing of their products.

4. To get in touch with SMEs retail banks have to reorganize their distribution channels.

5. Risk management is another major issue.

6. The overall decisive factor is staff. Training of staff members is of high importance.

To help SMEs in such conditions efficient retail banks in developed and developing countries need core competence in the following main areas: automation, distribution, marketing, credit policy and management.

The provision of finance to small and medium enterprises in transitional economies at market interest rates presents challenging opportunities for commercial banks. It helps them to diversify their portfolio and hence help reduce concentration risk. Through extensive networking, it could also help commercial banks raise and diversify their deposit and other funding bases. This would be beneficial to banking penetration and more efficient financial intermediation. It would provide them invaluable experience in strengthening their credit appraisal skill and in developing new and innovative financial products tailored to the

specificity of each market. It could provide banks with the knowledge of efficient financial intermediation without the confines of collateral.

ROTOR DYNAMIC FORCES

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Any movement of the axis of rotation of the impeller-shaft relative to its casing induces fluid forces on the shaft and the casing, which in turn increase or decrease the rotor deflection or vibration. Contributions to these rotor dynamic forces can arise from seals, the rotor side space, the flow through the impeller, leakage flows, or the flow in the bearings themselves.

When designing high speed turbomachines the resulting fluid forces and rotor deflection must be known to begin with. For this reason rotor dynamic coefficients are required as input data for the prediction of rotor vibration. In general the dynamic behavior of the rotor system is described by linear models with time invariant system parameters in terms of differential equations, expressing the dynamic equilibrium of inertia, damping, stiffness and external forces.

Assuming a linear relationship of force and displacement and neglecting influences of high derivatives of the motion, this force-displacement model may be described with the following rotor dynamic stiffness, damping and mass matrices:

$$\left\{\begin{array}{c} -F_x \\ -F_y \end{array}\right\} = \left[\begin{array}{cc} K_{xx} & K_{yx} \\ -K_{xy} & K_{yy} \end{array}\right]\left\{\begin{array}{c} x \\ y \end{array}\right\} + \left[\begin{array}{cc} D_{xx} & D_{yx} \\ -D_{xy} & D_{yy} \end{array}\right]\left\{\begin{array}{c} \dot{x} \\ \dot{y} \end{array}\right\} + \left[\begin{array}{cc} M_{xx} & M_{yx} \\ -M_{xy} & M_{yy} \end{array}\right]\left\{\begin{array}{c} \ddot{x} \\ \ddot{y} \end{array}\right\}$$

(1)

For small motion around a centered position the cross-coupled terms of the damping and stiffness matrices become equal in magnitude based on their rotational symmetry. According to experimental findings the cross-coupled inertia terms of the mass matrix may be neglected and are set to be zero. However, the direct inertia term M cannot be neglected except in cases where laminar seal flow dominates, e.g. for slide