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INSTITUTIONS, POLICIES AND OUTCOMES: ACCOUNTING AND FINANCE IN TRANSITION

ABSTRACT

This paper begins with discussion of a number of themes related to institutions in market (particularly emerging market) economies – their importance, diversity, roles and effectiveness. First is the importance of institutional structures to growth and development in emerging market economies. Second is the diversity of structures identified as institutions. Third is the difficulty in identifying and quantifying measures of institutional quality/capacity.

It is recommended that in the presence of such diversity that the focus turn to the level of social analysis at which those structures identified as institutions will operate, and their role and effectiveness at these levels. This leads to the identification of those levels of institutions that might best be modified through policy intervention: the institutional environment – the formal rules of play; and the institutions of governance – how play occurs within the boundaries of the rules. However, as discussed next, while a focus on the intended role of institutions is clearly called for, it must be recognised that the building of new institutions must account for history. Thus their likely success depends on path dependence, rather than automatically being able to benefit from adoption or adaptation of best practice from other market economies.

A wide-ranging analysis of both successful and failed institutional initiatives is argued for, in order to benefit from consideration of the unique characteristics of the emerging or developed market economy in which particular institutional structures are trialled. The paper finishes with a brief review of a number of studies of the effectiveness of institutional environment and the institutions of governance in selected emerging and developed economies. The focus is on the failure, success, or recognition of indeterminacy in the outcomes associated with each institutional structure analysed.

JEL Classification Numbers: K2, O1, P0

Key Words: institutional environment, institutions of governance, emerging market economies, transition economies, economic growth and development

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1. INTRODUCTION

Institutions play a key supporting role in the process of economic development. The quality of institutions in any economy reflects the combination of economic freedom, judicial efficiency, levels of corruption, effectiveness of the bureaucracy, and protection to private property provided by these struc-

tures. Efficient institutions support trade, investment, innovation, labour force reallocation and thus growth.

While understood to be important, it often appears that the scope of what constitutes an institution is so all-encompassing as to make discussion of their nature and roles difficult. Institutions include the polity, judiciary and legal system, governance structures, economic policy, rules, regulations, etc. Thus, a focus on what institutions do, especially how particular levels, types or groups of institutions act on economic outcomes, may be suggested as being sensible in considering their role and effectiveness. It is matters of this form that are addressed in this paper.

Section 2 of this paper provides a discussion of institutions, their importance, and roles in emerging market economies. This is done by consideration of the different levels of social analysis at which institutions may operate, following Williamson (2000), and the implications for emerging market economies if they are not effective. Having addressed the roles of institutions in Section 2, Section 3 follows with discussion of the importance of path dependency on the forms and success of institutions in emerging market economies. Here, it is recognised that these economies may be limited in terms of choice of institutions by their history. Section 4 of the paper provides a brief introduction to the other papers in this special issue, in terms of both their focus and the level/form of institution that each is analysing. Here specific cases of both institutional success and failure are considered. Section 5 of the paper provides a brief summary of the key ideas and issues covered.

2. INSTITUTIONS: IMPORTANCE, DIVERSITY AND ROLES

Sustainable growth and economic development are central concerns of emerging market economies, including those emerging market economies in transition. Analysis of the factors that determine economic growth, development, and the efficiency of arrangements that impact on growth will, at least eventually, be likely to lead to consideration of the role of institutions in these processes.

2.1. IMPORTANCE AND DIVERSITY

There is broad agreement that institutions have a key role to play in economic development (e.g., Keefer and Knack, 1995; Havrylyshyn and van Rooden, 2003; Rodrik, 2004). Recognition of this role is reflected in the empirical literature linking measures of the development of social, economic, and political institutions and comparative economic performance (e.g., see early work by Adelman and Morris, 1965; or, more recently, that of Acemoglu *et al.* 2001). Institutions dealing with property rights, regulations, and macroeconomic stabilisation play especially important roles (Rodrik, 2000). Institu-

tions that support the effective rule of law, and the creation of organisational structures that do not impact excessively on incentives, encourage trade, investment, innovation, and thus growth. An efficient institutional framework assists in the implementation of new technologies, replacement of the old, and reallocation of the labour force (Caballero and Hammour, 2000). Thus, cross-country analysis evidences that indicators of institutional quality/development – reflecting high levels of economic freedom, judicial efficiency, low levels of corruption, effective bureaucracy, and protected private property – can exert significant positive effects on the level of and growth in economic output (Assane and Grammy, 2003; Ali, 2003).

However, the definition of institutions within both the theoretical and empirical literature often seems all-encompassing – including polity, the judiciary and legal system, governance, economic policy, rules, regulations, etc. For example, the World Bank's Country Policy and Institutional Assessment Index is comprised of 16 components grouped under four broad categories: economic management; structural policies; policies for social inclusion/equity; and public sector management and institutions. Economic management includes macroeconomic management, fiscal policy, and debt policy. Structural policies cover trade policy, financial sector regulation, and the business regulatory environment. Policies for social inclusion/equity cover matters dealing with gender equality, the equity of public resource use, building human resources, social protection and labour, policies and institutions for environmental sustainability, and property rights and rule-based governance. Public sector management and institutions refers to the quality of budgetary and financial management, efficiency of revenue mobilization, quality of public administration, and transparency, accountability, and corruption in the public sector (World Bank, 2004).

Such diversity in the scope of what institutions are increases the difficulty of discussing the nature and role of institutions. This suggests that, perhaps, the focus be on what institutions do. In this sense institutions may be seen as the structures shaping the outcomes achieved through the interaction of multiple goal-oriented decision makers (Nelson, 2007: 314). More generally, institutions are the set of rules established by society that impose limitations on free behaviour (Redek and Sušjan, 2005: 996).

While institutions may be viewed as rules, their multidimensionality suggests consideration also be given to how particular groups of institutions act on economic outcomes. In particular, how this diversity of institutions may effect economic development and performance in emerging market economies and at which level each operates. From this perspective institutions represent the interconnected structures or rules associated with the different levels at which social analysis may be conducted – embedded institutions, the institutional environment and institutions for governance (Williamson, 2000: 596-597).

2.2. EMBEDDED INSTITUTIONS

Embedded institutions incorporate informal institutions, customs, traditions, norms, and religion (Williamson, 2000: 597). Social arrangements interact with incentive structures, impacting on such areas as social mobility, earnings, and the allocation of talent. It may also be argued that conservative attitudes act as a restraint on development. Social development influences investment quality, levels of technical efficiency, and the ability to assimilate technology (Temple and Johnson, 1998). Thus, when at low levels, social development may act to restrict innovation.

However, it must be recognised that embedded institutional features are unlikely to be amenable to deliberate or rapid policy change in many emerging market economies. Thus pre-existing practices, informal arrangements, the structure of organisations, and societal norms, will have to be accommodated, and will form part of the basis of any new institutional structure developed (Olson and Kahkonen, 2000: 28).

2.3. THE INSTITUTIONAL ENVIRONMENT

The 'formal rules of the game' are provided by the institutional environment, especially with respect to the establishment of property rights and the basic law of contract. These rules are exemplified in the legal and judicial, regulatory, and reporting institutions. It is at this level that the executive, judicial, and bureaucratic roles and power of government are considered.

Good choices for the institutions dealing with property rights and the legal and regulatory environment are essential to the success of the process of economic transition, and more generally to achieving a market-oriented environment conducive to sustainable long-term economic growth (Rodrik, 2000: 4). These structures are particularly important to successful reform in transition economies of state-owned enterprises and their restructuring in corporate form (e.g., Beim and Calomiris, 2001: 105-106; Organisation for Economic Co-operation and Development, 2000: 14).

Unfortunately, even where present, it is with respect to the institutional environment (and also, as an extension, the institutions of governance) that emerging market economies frequently display weaknesses in the form of poor institutional capacity. Institutional failure may result from this deficiency. This leads existing institutions to either undertake or discharge their designated functions inappropriately (Šević, 2005: 3).

Inefficiency and ineffectiveness of the legal and judicial systems results from inadequacies in the recognition and protection of property and creditor rights, and poor clarification of ownership and control rights. Such institutional weaknesses reduce or preclude the enforceability of claims and contractual obligations, discouraging investment, and promoting delay and

excessive cost in the reorganisation of business (see Šević, 2005: 3-7). For example, investors who fear that their returns may be appropriated will be reluctant to risk their capital when property rights are weak and poorly protected. Thus, countries with strong measures of institutional development, an essential foundation for the effective operation of capital markets, enjoy measurably higher levels of investment and economic growth (Gwartney, Holcombe and Lawson, 2006).

2.4. INSTITUTIONS OF GOVERNANCE

When approaching institutions of governance, incentives and contractual relations, or the 'play of the game' the matters of interest. It is at this level that we consider such matters as board structure and compensation, accounting standards, and transparency and disclosure in corporate reporting. Governance is one of the key functions of capital markets. Thus, such structures are especially important in determining the efficiency of operation of capital markets.

Governance in capital markets relies on both the information production and monitoring provided by these markets. Measures of market-based governance are positively correlated with productivity improvements, and through this real output growth. This reflects the impact of governance on the efficiency with which individual firms utilise resources internally (Tadesse, 2004).

Poorly developed accounting standards, and a lack of transparency and disclosure in corporate reporting, reduce the effectiveness of corporate governance mechanisms in aligning the incentives of managers with those of enterprise owners. Poor accounting and disclosure practices also allow recognition of problems in financial performance to be deferred or hidden, and leave unmet investors' requirements for greater information disclosure (Šević, 2005: 5). Finally, weaknesses in the role played by those responsible for regulation and supervision of the market may lead to business taking excessive risk, with increases in the level of bankruptcies having the potential to erode market stability (Šević, 2005: 5).

2.5. IMPLICATIONS FOR THE EFFICIENCY OF MARKETS

Each of the higher levels of institutional structure – embedded, environment, and governance – ultimately impact on resource allocation and employment outcomes – the institutional level of focus for neoclassical economics and agency theory. Together it is these institutions (rules) that define the feasible set of economic decisions, and thus outcomes that may be achieved by a given economic system (North, 1990). It is analysis and the optimisation of the 'formal rules of the game' and 'play of the game', the first-order and second-order matters in getting the right institutional structures, which are the pri-

mary foci of the new institutional economics (Williamson, 2000: 597-600). Systemic deficiencies in an economy's institutional environment and institutions of governance will preclude the 'low-cost transacting and credible commitment' needed to support the creation of efficient markets (North, 1997). Thus it is these sets of institutions that are likely to be most profitably focused on when examining structures to facilitate economic growth and development in emerging market economies.

3. PATH DEPENDENCY AND INSTITUTIONAL CHOICES

In seeking guidance on the forms of institutional structures to choose, emerging market economies may look at examples from both high-income and other emerging market economies. Thus they may examine best-practice with respect to legal and judicial systems, securities and financial system regulation, corporate governance principles, and financial and other forms of corporate disclosure – the institutional environment and institutions of governance. However, debate on the applicability of given examples of institutional structure is unavoidable. Individual characteristics of emerging market economies may have potential implications for the success of specific institutional choices. Embedded institutions may act to shape or even restrict the set of institutional options available to individual emerging market economies.

The experiences of the transition economies, where extreme changes occurred to many higher level components of the institutional structure, provides examples of the importance of coherence in the chosen economic reforms to final outcomes. While economic principles may not change from one location to another, because these principles are institution free, local knowledge is required to fill out how they will shape outcomes (Rodrik, 2004: 31). The contrast between the collapse of output in the Central and Eastern European nations, and the rapid and relatively consistent growth of China following the commencement of transition, illustrates these points. Differences are present in conditions and economic structure, the choice and sequencing of reform strategies, and in the pace of reform. This highlights that differences in institutional structure cannot be ignored in shaping reform strategies (e.g., Campos and Coricelli, 2002).

An extension is that history itself is also relevant in constraining future choices, increasing returns to institutions being present. Thus path dependence, or alternatively sequencing, will be an important determinant of the emergence and success of a particular set of institutions (Puffert, 1999; De Haan, *et al.*, 2006). In this sense institutional change will be path dependent. Thus the timing of events, the economic history, matters (Pierson, 2004). However, while institutional change is significantly path dependent, early economic and political liberalisation and the presence of external anchors (e.g., EU accession) may have allowed some transition economies to break path dependence. In particular, economic liberalisation may generate demand for

institutional change and thus provide support for the process of systemic transformation (Di Tommaso, *et al.*, 2007).

The above discussion reinforces the need to better understand the role, operation, and effectiveness of individual types of institution. We should, therefore, consider the relationship between institutions and the specific characteristics of the economies in which they are planned to be or have been established on a case-by-case basis. This will allow a better understanding of the role and effectiveness of the different levels of institutional structure. The studies that follow in this special issue add to the meeting of this objective.

4. INSTITUTIONS IN EMERGING AND DEVELOPED ECONOMIES: EXAMPLES, OPERATION AND IMPLICATIONS

The papers that follow in this special issue analyse a number of institution arrangements dealing with corporate reporting, capital markets, policy-based financing, and facilitating trade. The topics covered reflect on choices with respect to the institutional environment and/or institutions of/for governance. This provides us insight into the way in which interaction between the institutional structure – embedded, environment, and governance – and the unique characteristics of the economy determine the effectiveness, success or failure of the structure.

4.1. CORPORATE REPORTING AND ACCOUNTING

As discussed above, the institutions of governance will determine the efficiency with which individual firms utilise resources internally (Tadesse, 2004). Accounting standards, transparency and disclosure in corporate reporting are important in: ensuring that corporate governance mechanisms are effective in aligning the incentives of managers and investors; and preventing delays in recognition or the hiding of poor financial performance (Šević, 2005: 5). The papers by Son, *et al.* and Jackling and Spraakman deal with the production, disclosure and use of company financial information in two very different economies. For Son, *et al.*, this is Vietnam, while for Jackling and Spraakman the setting is Australia.

Son, *et al.* examine the factors influencing the provision of financial information of small and medium companies in Vietnam, in order to draw conclusions that may apply to other transition economies. Their focus is on the financial reporting practices of small and medium companies (SMCs). This reflects two features of SMCs. The first is their role in development in transition economies. The second is that smaller firms have largely been ignored in the research literature (e.g., John and Healeas, 2000; Hopper and Hoque, 2004).

Data for the paper is derived from semi-structured interviews of both preparers and users of SMC financial information. The responses provide quali-

tative insights regarding views on its provision in Vietnam's transition economy. Based on their interview responses, Son, *et al.* find that the provision of financial information by SMCs is inadequate, both in quantity and quality. This reflects both demand-side and supply-side factors. On the demand side Son, *et al.* find a lack of awareness by company directors of the functions of accounting, perceptions that there are limited benefits from enhanced external financial reporting, and perceptions that reporting is simply for compliance with government requirements. Indeed, statutory pressure is the primary source of impetus for directors to provide financial information. In terms of users, demand is low. This is due to the perceived low quality of audits. On the supply side Son, *et al.* find that a lack of skilled accounting staff has a negative impact on the ability to provide such information. These problems are associated with, and compounded by, institutional failure in the form of a high frequency of change in accounting regulation. Such instability in the regulatory framework negatively affects the preparation and provision of information.

It is the inadequacy in the provision of financial information due to poor regulation of the reporting environment that Son, *et al.* believe to be a danger to the development of SMCs in Vietnam. Under the rapid changes associated with economic transition survival and growth of SMCs will be assisted by the regulatory environment contributing more to transparency and consistency in reporting.

While Son, *et al.* consider the impact of the regulatory environment on corporate reporting, Jackling and Spraakman use survey methods to look within the firm itself. The focus of their survey questionnaire is on the impact of enterprise resource planning (ERP) systems on management accounting, particularly on activity-based capital budgeting in Australia. An ERP system links all record-keeping systems (e.g., financial, sales, fixed assets, inventory, human resources, capital budgeting) across the company to a single data warehouse. This suggests that a holistic approach to the management of operations should be possible.

A benefit of ERP systems is that they better allow management at the activity level instead of at the financial transaction level. Activities can be measured in physical terms and compared to standards in terms of quantities of resources used. This allows for a better matching between information and the activity focus of management accounting, particularly for costing and performance measurement. In particular, it needs to be recognised that money metrics may cloud the ability to determine the variability in efficiency of the conversion of resources into goods and services, increasing the difficulties of performance measurement. This suggests that physical measurements are, therefore, superior for this type of activity.

Jackling and Spraakman note that ERP systems are leading to high levels of standardisation and computerisation of information. However, while allow-

ing capital budgeting, budgeting, operating statements, forecasting, performance measurement, and costing to be more accurate, detailed, and reported more quickly, ERP systems have not yet fundamentally changed the practices associated with these processes in the companies surveyed.

Although not yet altering management accounting practices, Jackling and Spraakman argue that the introduction of ERP systems has had two important effects. The first effect is that the CFO, and thus the CFO's unit, no longer has proprietary ownership of accounting information within the organisation. Thus, management accountants must now recognise the need to, or fact that they do, share information with other users within the firm. The second effect is the increased level of non-financial information now available to management accountants. Jackling and Spraakman argue that management accounting must, therefore, move beyond accounting systems in their support of management, by accessing information from these other systems. Thus, changes brought about by the introduction of ERP systems for management accountants are more to do with the scope of information, rather than the processes used.

4.2. CAPITAL MARKET EFFICIENCY IN EMERGING MARKETS

While lending is an important source of capital for many emerging market economies, stock markets provide an alternative but complementary source of funding. Both theoretically and empirically greater stock market liquidity enhances economic growth (e.g., Bencivenga and Smith, 1991; Levine and Zervos, 1998). Stock markets have particular advantages in strengthening the institutions of governance. For example, strict reporting requirements may help to reduce information asymmetries between investors and managers of listed firms, allowing the market to better enforce actions by managers that are in investors' interests. The papers of Keller, *et al.* and Chowdhury, *et al.*, analyse aspects of efficiency in two emerging economy stock markets. These are the Warsaw Stock Exchange (WSE) in Poland, and Bangladesh's Dhaka Stock Exchange (DSE), respectively.

Keller, *et al.* address the issue of whether best-practice institutional design from a high-income economically-developed market economy, in this case France's securities market structures and regulation, can be successfully adopted by an emerging economy, Poland. This is particularly important in light of the question of the impact of path dependency on the success of institutions.

In what may be viewed as a natural experiment, Keller, *et al.* analyse the outcome of the imposition of a developed stock market structure and trading platform on an emerging market economy. Intraday data is used to compare the market microstructure properties of Poland's WSE with those of France's Euronext, the market on which the WSE's structure is based. Four measures

of market quality are considered: the trade volume-weighted relative effective spread, range-based intraday volatility, trade size, and traded value. This allows Keller, *et al.* to determine whether the policy of superimposing a stock market structure on the Polish economy has been a successful experiment. While concluding that the Polish market is still emerging, Keller, *et al.* suggest that superimposing a stock market structure onto the Polish economy has been a qualified success.

In most areas of market quality Poland's WSE is inferior to that of France's Euronext. This is due to overall liquidity in terms of average trade size and trade numbers being smaller in the WSE than in Euronext. However, a side effect of lower trading activity on the WSE is that it exhibits much lower volatility than Euronext. Furthermore, for stocks in the first (largest) decile of market capitalisation the WSE has lower transaction costs than Euronext.

While Keller, *et al.* are that the upper deciles transaction cost advantage is not conclusive evidence, the results suggest that it is possible to successfully introduce a relatively efficient capital market institution into emerging economies, rather than taking a more extended time to organically grow their own unique institutions. However, a key question that still needs to be addressed is whether there are other similarities in institutional structure between Poland and France that have contributed to the successful adoption of the Euronext stock market structures by the WSE.

Chowdhury, *et al.* address the issue of whether macroeconomic risks impact on DSE security returns in a manner consistent with previous research on emerging capital markets. In doing so they are able to indirectly consider the impact of the institutional environment and institutions of governance on operation of the DSE. The CAPM suggests that market return on a broad-based market index should be related to the risk associated with the macroeconomic health of the economy. This reflects that the latter affects an individual firm's cash flows and the systematic risk component. Therefore, the overall performance of a firm, in terms of its contribution to the market portfolio's return, may be evaluated using macroeconomic risk variables (i.e., growth in industrial production as a proxy for GDP growth, inflation, and the exchange rate).

Based on monthly data for the January 1990 to December 2004 a Generalized Autoregressive Conditional Heteroskedasticity (GARCH) process is used to find the predicted volatility of the macroeconomic risk variables, while vector auto-regression (VAR) is employed to investigate relationships between them. Chowdhury, *et al.* show that the relationship between stock market returns and macroeconomic variables is not strong. Additionally, in contradiction to predictions on causality in an emerging capital market, industrial production volatility Granger-causes stock market volatility and stock market volatility Granger-causes inflation uncertainty (volatility). Causality in the opposite direction, inflation uncertainty to stock market volatility, was

expected due to the dominance of non-institutional investors, information asymmetries between investors, and the scope for market manipulation in Bangladesh – institutional failures in both the institutional environment and institutions of governance. Surprisingly the result is one that might be expected in an efficient and complete developed market where skilled investors dominate. However, the dearth of qualified analysts and institutional investors in Bangladesh leads Chowdhury, *et al.* to suggest that this finding needs to be explored further. Are the institutional environment and institutions of governance sufficiently strong in the case of the DSE to overcome such obvious impediments to market efficiency?

4.3. INSTITUTIONAL FAILURE AND POLICY FINANCING

As discussed above, emerging market economies frequently display weaknesses in the form of poor institutional capacity. This may result in institutional failure (Šević, 2005: 3). The paper by Akiba, examines a case of such institutional failure. This is in the context of the lending behaviour of the Development Assistance Fund (DAF) in Vietnam.

The DAF is a policy finance institution established to support financing of small- and medium-sized enterprises (SMEs) in the developing Vietnamese economy. Its role is to compensate for market failure in the form of funding constraints on these enterprises – credit rationing. Such credit rationing is associated with oligopolistic private-sector financial institutions, problems of information asymmetry, and external economies in the development of information and credit systems. Policy finance is expected to overcome the need to allow excess profits for the private sector, through the artificial manipulation of interest rates, in order to give them sufficient incentive to bear the sunk costs of systems development (Hellman, *et al.*, 1997).

However, Akiba finds from her survey of both DAF officials and corporate officers that state-owned enterprises (SOEs) and private sector corporations (PSCs) are evaluated on different bases. For SOEs the time since their establishment and their size are key considerations, while for PSCs the focus is on operational performance and, more than for SOEs, the ability to meet collateral requirements. Furthermore, cumbersome loan application procedures discourage PSCs from filing loan applications. Thus, strict lending criteria and the credit process greatly restrict PSC, particularly SME, access to DAF credit, in contradiction to one of the rationales for its establishment.

Akiba finds that an important source of such a distortion in lending behaviour is the incentive for DAF to avoid lending risk. This is due to a lack of enforceability of creditors' claims over the assets of failed enterprises – a failure in the institutional environment in terms of the establishment of property rights and the basic law of contract. Neither the DAF nor other banks have the right to decide asset disposal from failed borrowers, increasing un-

certainty over the recovery of their claims. Furthermore, while the state may choose to absorb bad debts in the case of SOEs, the DAF must cover any NPLs arising from lending to PSCs. Thus the DAF is motivated to avoid risk, especially the higher risks associated with lending to SMEs, one of its intended client groups. This provides it with a rationale for its costly selection and screening processes. Akiba concludes that this has forced PSCs (especially SMEs) to increase their dependence on personal borrowing and payment delays as sources of financing in order to cope with funding shortages.

4.4. INFORMAL INSTITUTIONAL ARRANGEMENTS AND TRADE

In their search for strong economic and employment growth governments of emerging market economies may look to exports and export expansion as sources of potential demand. When considering export activity, small firms are generally regarded as having a competitive advantage over larger firms. Smaller firms generate more export income per unit of domestic sales than larger firms (Calof, 1995), and thus have higher export intensity than larger firms (Bonaccorsi, 1992). This reflects their more flexible operating structures, ability to adopt niche strategies to take advantage of shifts in the business environment, and lower overhead costs (Ali and Swiercz, 1991; Calof, 1995).

Given their apparent advantages many governments have focused on policies that encourage more exporting by small business. This includes policies that aid the development of the export activities of existing small businesses and also policies that encourage more small businesses to enter export markets (Dichtl, *et al.*, 1984; Hardy, 1986; Malekzadeh and Nahavandi, 1984; Moen, 1999). Reinforcing the need for such policies is the increasing globalisation of markets and the intensification of competition that this implies (Julien, *et al.*, 1994; Julien, *et al.*, 1997).

While direct government involvement in the promotion of exports is one way to facilitate trade expansion (e.g., through government-funded trade fairs or government provision of export insurance for small business) it may not adequately address the reasons for the lack of engagement in trade by small businesses. The development of export activity requires that firms undertake a learning process (Johanson and Vahlne, 1977). For many small businesses this process of development can be strongly influenced by relationships with other firms (Johanson and Vahlne, 1992; Sharma and Johanson, 1987).

Through interaction with other firms, and by utilising their experiences, the small firm may obtain knowledge critical to the development of its export activities. Network relationships can thus form an important part of the learning process required of these firms (Johanson and Vahlne, 1992). Co-operative arrangements, a type of network relationship, are the focus of the paper by Burrow. In it he discusses the information derived from a survey of small

Australian exporters engaged in this form of network – a type of informal institutional governance via network.

Firm size is reported to be a major barrier to exporting by many owner/managers of small firms. More specifically, barriers include the lack information and thus familiarity with different countries and their markets, and also constraints imposed by limited with respect to human and financial resources. Co-operative arrangements allow some of these barriers to be overcome, through use of the experiences of, or the sharing of resources with, other firms. Thus government assistance with the development of such co-operative arrangements may provide an indirect method for export promotion.

Burrow finds that firms involved in co-operative arrangements are generally younger, have exported for shorter periods of time, and have more co-operative arrangements than firms that are older and more experienced in exporting. Co-operative arrangements were seen as having moderate importance to establishment and continued development of their export businesses. Also these arrangements are perceived as becoming more strategically important, and thus frequently used, for continued export development. Australian government assistance to develop co-operative arrangements, where received, is also believed to have contributed to the success of these arrangements and thus to export expansion.

While informal arrangements for institutional governance have been successful in some cases, it is, perhaps, a lack of enforceability that imposes limitations on these co-operative structures. Network arrangements appear to require a number of features for governance objectives to be successful, including values like trust, mutuality and shared identity (Parker, 2007: 113). Burrow finds a number of important reasons for the abandonment of co-operative arrangements by firms. These include the lack of control over the firm's activities imposed by the arrangements and a lack of trust of partners. This illustrates the difficulty in maintaining the requisite values for these networks to be sustained.

5. SUMMARY

That institutions and their development have obvious importance to emerging market economies is evidenced in several ways. First is the volume of (recent) general discussion of and empirical research on their importance in the emerging market literature. It is in the latter empirical research that questions arise as to the identification and measurement of institutions and institutional characteristics (i.e., in the creation of indices of institutional development/quality). Second is the diversity of those structures defined as institutions and discussed in this literature (e.g., the 16 areas covered in the World Bank's Country Policy and Institutional Assessment Index (World Bank, 2004)).

Given this diversity, the levels of social analysis at which institutions might be identified, and particularly their roles at these levels, should be the focus (e.g., following Williamson, 2000). This leads us to consider those levels of institutions that might best be modified through policy intervention: the institutional environment and institutions of governance. These are the 'formal rules of the game' and the 'play of the game', respectively (Williamson, 2000: 597).

While emerging market economies may appear to have the advantage of observing a variety of alternative institutional structures, including that currently perceived as best practice, their history acts as a constraint. The forms of institutional structure adopted by or adapted to any economy must account for the impact of path dependence, the building of new institutions on the remnants of old institutions, on their likely success. For this reason wide-ranging analysis of both successful and failed institutional initiatives is required. These analyses will benefit from consideration of the unique characteristics of the emerging or developed market economy in which these institutional structures have arisen. The papers of this special journal issue explore different aspects of the institutional environment and the institutions of governance in emerging and developed economies – failure, success, and indeterminate outcomes.

Examples of institutional weakness and failure are quite common in emerging market economies. Son, *et al.* find that the inadequate provision of financial information by SMCs in Vietnam reflects (what this paper would identify as) institutional failure. One is a lack of appreciation by management of SMCs of the importance of corporate reporting in attaining good governance. Rather than seeing benefits to the firm, the focus of management is simply on compliance with government requirements. Second is an institutional failure in the form of a high frequency of change in accounting regulation. The paper by Akiba shows the importance of the institutional environment – in this case inappropriately defined/allocated property rights – to the failure of policy financing initiatives in Vietnam. The effect is to limit the access of non-state, particularly SMCs, to development financing.

On a more positive note, Keller, *et al.*, show that it may be possible to successfully impose a particular set of institutional environments and institutions of governance onto an emerging market. Here it is the relatively successful experiment of France's Euronext being imposed on Poland's WSE, with lower transactions cost being evident in the WSE for the most liquid decile of the market.

Sometimes the ability to clearly identify the success or failure of an institutional structure eludes us. Burrow examines the usefulness of informal institutions – in the form of co-operative arrangements to facilitate small business exports in Australia. He finds that while sometimes successful, that a lack of trust may undermine these informal governance structures.

We may also find that outcomes surprise. The papers by Chowdhury, *et al.*, and Jackling and Spraakman provide examples of such events. Chowdhury, *et al.*, find that in common with many emerging market economies that the relationship between stock market returns and macroeconomic variables is not strong in Bangladesh. However, in contradiction to predictions on causality, industrial production volatility Granger-causes stock market volatility and stock market volatility Granger-causes inflation uncertainty (volatility). This might be expected in an efficient and complete developed market but not one where there is dominance of non-institutional investors, information asymmetries between investors, and the scope for market manipulation – institutional failures in both the institutional environment and institutions of governance. Finally Jackling and Spraakman Jackling and Spraakman find that while ERP systems allow capital budgeting, budgeting, operating statements, forecasting, performance measurement, and costing to be more accurate, detailed, and reported more quickly, they have not yet significantly changed management accounting practices associated with these processes. Instead, the introduction of ERP systems has relaxed the CFO's proprietary ownership of accounting information, and increased the level of non-financial information now available for use by management accountants – a democratisation of information flows that will impact on internal aspects of corporate governance.

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AUSTRALIAN SMALL BUSINESS EXPORTERS' EXPERIENCE WITH CO-OPERATIVE ARRANGEMENTS

ABSTRACT

Many small Australian businesses with potential to export don't, denying Australia employment and foreign income. Many owner/managers of small firms report size as a major barrier to exporting. Specific barriers include a lack of familiarity with different countries and markets, and financial and human resources. Entering into co-operative arrangements with other firms is one way small firms can overcome such barriers.

This paper outlines experiences of a sample of small Australian exporters with co-operative arrangements. In general, younger firms and firms that have exported for shorter periods of time, tend to be more likely to be involved in co-operative arrangements, and have more such arrangements, than older firms and more experienced exporters. Decision-makers of surveyed firms consider co-operative arrangements important in establishing and continuing development of their export business. They also report that co-operation is becoming more frequent and strategically important for continued export development. Small exporters that have received Australian government assistance to develop co-operative arrangements believe that this had contributed to these arrangements success. However, a major reason for firms to abandon co-operative arrangements is the lack of control these impose.

JEL Classification Numbers: D0, F1, H0

Key Words: small firms, export decision, co-operative arrangements, government assistance, Australia

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1. SMALL BUSINESS AND EXPORT ACTIVITY

The role of small businesses in the export activity of many countries is evident from statistics. For example, in the United States of America it has been estimated that over 88 per cent of all firms employ fewer than 20 people (Fiegenbaum and Karnani, 1991) and more than half of all exporting firms have less than 100 employees (Birch, 1988). In Canada approximately 94 per cent of all firms engaged in exporting are classified as small or medium size with sales of less than C50 USD million per year (Calof, 1995).

In Australia, there are approximately 1.2 million small businesses that are estimated to comprise nearly 97 per cent of all non-agricultural private sector businesses and which generate around 15 per cent of the nation's gross domestic product (Australian Bureau of Statistics, 2003).

An Australian business (excluding agriculture) is classified as small if it is: non-manufacturing and employs less than 20 employees; or manufacturing and employs less than 100 employees.

Approximately 47 per cent of the total Australian workforce is employed in small businesses of which 56 per cent are owner-operated firms with no employees, 33 per cent are firms employing one to four persons and 11 per cent are firms employing three to 19 persons (Australian Bureau of Statistics, 2003). Small businesses have been credited with providing 58 per cent of total employment growth during the period 1996–97 to 2000–01 (Australian Bureau of Statistics, 2001).

Despite the large number of Australian small businesses, only four per cent are estimated to engage in export activity (Australian Bureau of Statistics, 1998). Even so, over 80 per cent of Australian manufacturing exporters and 60 per cent of service sector exporters are of small or medium size (Marsden J. & Associates, 1995). Australian service sector exporters have been estimated to have generated approximately 20 per cent of the nation's total export income, and contributed indirectly to the earning of more than 40 per cent of total national export income (LEK Partnership, 1994).

More generally, smaller firms have been identified as having higher export intensity than larger firms (Bonaccorsi, 1992). One measure of export intensity is the proportion of a firm's total revenue that is derived from exports and it has been proposed that when small firms undertake exporting, they generate more export income per unit of domestic sales than larger firms (Calof, 1995). Also, when compared to larger firms, small firms are generally regarded as having a more flexible operating structure, be more able to implement niche strategies to take advantage of changes in the business environment, and to have lower overhead costs. These characteristics are argued to provide small firms with a competitive advantage over larger firms in export markets (Ali and Swiercz, 1991; Calof, 1995).

As a result of these small firm characteristics and the desire of governments to increase export income and domestic employment, many governments have focussed on policies to encourage more small businesses to export and to assist the development of the export activities of existing small business exporters (Dichtl, *et al.*, 1984; Hardy, 1986; Malekzadeh and Nahavandi, 1984; Moen, 1999). For many countries these policies have been given priority as their economies face intensified competition with the globalisation of markets (Julien, *et al.*, 1994; Julien, *et al.*, 1997).

2. DEVELOPMENT OF SMALL BUSINESS EXPORT ACTIVITY

The development of small business export activity has generally been represented as an incremental process, whereby firms progress through a number of distinct stages from no export activity and with revenue earned solely from

the domestic economy, to the final stage of an active, experienced and committed exporter (Aharoni, 1966; Anderson, 1993; Barkema, 1996; Bilkey and Tesar, 1977; Cavusgil, 1980; Chen and Martin, 2001; Crick, 1995; Czinkota, 1982; Czinkota and Johnston, 1981; Johanson and Wiedersheim-Paul, 1975; Joynt and Welch, 1985; Kotabe and Czinkota, 1992; Mehran and Moini, 1999; Reid, 1981; Stopford and Wells, 1972).

There is however, no generally agreed view as to how a small business commences exporting. It could be that a firm commences exporting after it has reached maturity and saturation in its home market and is looking to increase sales revenue (Caves, 1982; Porter, 1990). Alternatively, it could be that a firm might commence exporting by receiving an unsolicited order from overseas. On the other hand, there is evidence that some firms have a strategy to commence exporting after only a short period of having relatively small levels of domestic sales (Oviatt and McDougall, 1994). An Australian study of these "born global" firms found average export revenue comprising 76 per cent of total revenue (McKinsey & Company and Australian Manufacturing Council, 1993).

Irrespective of the particular stimulus that initiates the export activity of a small business it would appear that once the firm commences exporting its personnel it begins to learn about foreign markets. It is the extent of this learning process that has been identified with the progression of the firm to active exporter (Johanson and Vahlne, 1977), or ultimately to developing an international division or becoming a fully integrated global enterprise (Newbould, *et al.* 1978).

An important component of this export development learning process is the nature of the firm's relationships with others (its networks) (Sharma, 1993). As a result "the network perspective goes beyond the existing models of incremental internationalisation by suggesting that a firm's strategy emerges as a pattern of behaviour that is influenced by the variety of its network relationships and ... the impact of these relationships on the firm's export activity can vary from facilitating to inhibiting export market development" (Coviello and Munro, 1997: 366). Similarly, the firm's relationships with others, both domestic and international, are considered to be more important for firms entering new export markets than are the characteristics of particular foreign markets (Johanson and Mattsson, 1988).

Supporting studies have found that for many small businesses, the development of export activity is significantly influenced by relationships with others over time (Johanson and Vahlne, 1992; Sharma and Johanson, 1987). Thus, by applying the framework that the development of export activity is a learning process (Johanson and Vahlne, 1977), network relationships provide the experience and interaction with others that the firm needs to obtain the critical knowledge for successful export activity (Johanson and Vahlne, 1992). Using this perspective, a study of small New Zealand software firms (Cov-

iello and Munro, 1997) proposed a model of small business export development comprising stages of internationalisation, firm characteristics and network relationships

3. CO-OPERATIVE ARRANGEMENTS

One expression of business linkage and network relationships is co-operative arrangements, which comes from the definition used by an Australian government study where a co-operative arrangement was defined as “a special relationship between at least two firms that is beyond normal market transactions and has some permanence” (Bureau of Industry Economics, 1995: xvii).

The Australian government study examined the experiences with co-operative arrangements of around 1,300 Australian firms, large and small, exporting and non-exporting. Via a questionnaire, information was obtained about: the nature and extent of firm co-operative arrangements; how firms co-operated; the benefits and costs of co-operation; perceived importance of co-operation to firm performance; the role of government and industry associations in initiating and developing co-operative arrangements.

The major results from this study were that: around two thirds of firms surveyed were involved in substantial forms of co-operation; most of the co-operative arrangements involved just two firms; firms co-operate fairly evenly with customers, suppliers and other firms; three quarters of firms perceived co-operative arrangements had provided major or critical benefits to their business; and the firms most likely to benefit from co-operative arrangements were information technology, telecommunications, scientific and medical firms, larger firms, high technology firms, and exporting firms (Bureau of Industry Economics, 1995: xvii-xxvi).

Although this study did not focus specifically on small exporting firms, some general observations were evident from the reported results. These include that: Australian exporting firms were more likely to have co-operative arrangements than were non-exporting firms, and that those arrangements tended to be formal; the larger the firm, the higher the likelihood of an overseas linkage but even the smallest of firms were using co-operation to access overseas markets or to find new overseas suppliers; and those firms that were involved with overseas markets were apparently obtaining disproportionate major/critical benefits from finding new overseas customers/suppliers as a consequence of business co-operation (Bureau of Industry Economics, 1995: 58, 71, 81)

These observations were supported by a survey of Australian small business (Bureau of Industry Economics, 1994) which found that 30 per cent of small firms in emerging industries used joint ventures to assist with market-

ing their export products, and approximately 60 per cent used arrangements with distributors for this task. Also, it was found that the: more intensely the firm co-operates the greater were the benefits; benefits of co-operation outweighed the problems by a big margin; and major reasons for co-operation failure were lack of trust and loss of control.

At around the same time that these studies were reported, the Australian federal government introduced the Business Networks Program. The program was funded by the federal government through AusIndustry, and was implemented in conjunction with a range of industry associations, federal and state government agencies, local government, regional development authorities and private consultancies (Bureau of Industry Economics, 1995).

The aim of the Business Networks Program was to assist small and medium sized firms to establish and develop co-operative arrangements (business networks) by funding the services of a network broker who had the task of assisting the formation of the business network (AusIndustry, not dated: 1).

The program comprised three stages and firms could apply for entry at any of the stages, depending on the extent of their network development. Stage One, the feasibility stage, involved getting the network members to define their co-operative arrangement and facilitate discussion and development of trust. In Stage Two, a business plan was prepared and the network agreement developed. Stage Three involved the implementation of the co-operative business plan. In the first two stages, the program provided assistance from a network broker while in the third stage financial assistance was given towards the network's first year of operation. (AusIndustry, not dated: 1).

From the time of the first application in April 1995 until the end of 1996, the program facilitated more than 200 network projects involving more than 1,000 small and medium sized enterprises together with some educational institutions, government agencies and large firms (Dean, 1996). The most common purpose for creating networks was for export marketing, at approximately 65 per cent, with other purposes being product development, procurement, production, and after sales service.

4. AUSTRALIAN SMALL BUSINESS EXPORTERS: SURVEY

In response to the general conclusions from the Australian Bureau of Industry Economics 1995 study showing the use and benefits of co-operative arrangements to Australian business, a survey was conducted of a sample of Australian small exporting businesses. One of the aims of this survey was to identify the impact of co-operative arrangements on the small firm's export activity.

To be included in the study, firms had to be domiciled in Australia, engaged in exporting, and classified as small using the Australian Bureau of Statis-

tics definition. That is, either a manufacturing business with less than 100 full time employees or a sales or services business with less than 20 employees. Of the thirty-eight firms that satisfied these criteria and were included in the study, 70 per cent were predominantly involved in manufacturing, 27 per cent in sales and three per cent in services.

Some descriptive data was collected of each of the firms included in the study. The number of years the firm had been in existence varied quite considerably with approximately 82 per cent of sales and service firms having been established for less than 20 years, whereas 71 per cent of manufacturing firms had been in business for longer than 20 years. However, a different picture emerged for the number of years the firms had been engaged in export activity. A little less than 50 per cent of firms in the manufacturing and sales/services groups had been exporting for more than 10 years with the longest time of exporting being seventy years for a manufacturing firm.

Relating the period of exporting to the age of the firm, approximately 63 per cent of all firms had been exporting for more than half of the firm's life. However, when separated into the manufacturing and sales/services groups significant differences were evident. For the sales/services firms approximately 90 per cent had been exporting for more than half the firm's age compared to only 52 per cent of manufacturing firms. Also, around 55 per cent of sales/service firms had been exporting for more than 90 per cent of the firm's life whereas only four per cent of manufacturing firms were in this category.

Differences between manufacturing and sales and services firms were also evident from the percentage of revenue earned from export activity. Only 15 per cent of manufacturing firms earned more than 50 per cent of their revenue from export activity, whereas approximately 73 per cent of firms in the sales/service group earned more than 50 per cent. However, nearly 60 per cent of manufacturing firms reported that in the previous five years the percentage of export revenue to total revenue had increased compared with only 18 per cent of sales/service firms reporting an increase in the last five years.

5. DISCUSSION

A little more than half of all the firms in the survey reported they were currently engaged in export activity co-operative arrangements. Of the firms that were currently engaged in co-operative arrangements, 65 per cent were manufacturing and 35 per cent were sales/services. In general, younger firms in both groups tended to be more likely to be involved in co-operative arrangements and to have more of those arrangements than older firms. Similarly, firms that had a shorter history of exporting tended to be more likely to be involved in co-operative arrangements and to have more of those arrangements than firms that had been exporting for a longer time.

Approximately 62 per cent of all the exporting co-operative arrangements were with only one other party and 38 per cent were with two or more parties. For the co-operative arrangements with only one party, approximately 38 per cent were with one supplier, 24 per cent were with one customer, 38 per cent were with one firm in the same industry and none were with a firm in another industry.

The location of the other parties to the co-operative arrangements was dominated by domestic parties. Approximately 51 per cent were with domestic parties, 40 per cent with overseas parties, and nine per cent with a combination of domestic and overseas parties. For one-party co-operative arrangements approximately 55 per cent were with a domestic party, whereas around 44 per cent of co-operative arrangements with two or more parties were with domestic parties only.

The firms involved in co-operative arrangements also provided information of the relative size of the majority of the other parties to the co-operative arrangements. Only 17 per cent of firms reported that the other parties were smaller than them, as detailed in Table 1.

TABLE 1. – **Size of other parties to the co-operative arrangements**

Other parties relative to the co-operative arrangements were:	Surveyed firms' responses (%)
Larger	33
Smaller	17
Of the same size	11
Of different sizes	39

Source: Author survey.

The views of the decision-makers of the small Australian exporting firms about their co-operative arrangements were also elicited. Decision makers considered that co-operative arrangements were of moderate importance for the establishment and continuing development of the firm's export business. They also felt that co-operation with other firms was becoming both more strategically important and more frequent. Similarly, for those small exporting firms that had received government assistance to develop their co-operative arrangements, it was perceived that the government assistance had contributed to the success of the co-operative arrangements.

A number of firms reported that they had previously abandoned co-operative arrangements. They were asked to nominate up to three reasons for the abandonment, with the major reason being the loss of control over the firm's activities that the arrangements imposed on them (Table 2).

TABLE 2. – Reasons for abandoning co-operative arrangements

Reasons for abandonment (non exclusive)	Reason cited by surveyed firms (% of all firms)
Potential loss of control	53
Disclosing commercial secrets	20
Financial costs involved	13
Administrative/legal burden	20
Additional time constraints	0
Personality difficulties	7
Lack of trust of partners	33
Other reasons	40

Source: Author survey.

6. CONCLUSIONS AND IMPLICATIONS FOR FUTURE RESEARCH

The significant outcome from this study is that many of the small business decision makers considered involvement in co-operative arrangements to be important for the initiation and development of their firm's export activities.

While the importance of co-operative arrangements has been supported in this paper, a number of questions for future research are suggested by its findings. What is the process by which co-operative arrangements assist the initiation and development of small firm export activity? How can co-operative arrangements be included in models to explain the process by which firms initiate and develop their export business? What are the factors required for a small firm and its decision-maker to be involved in co-operative arrangements? What are the characteristics of co-operative arrangements that decision-makers consider to be important for export activity? Do firms that enter into co-operative arrangements achieve higher levels of export performance/success? Would government programs to facilitate the involvement of small firms in co-operative arrangements assist the development of export activity by the country's small business sector? In answering these questions future research will need to deal in detail with both: the underlying theoretical bases that justify use of co-operative arrangements, and the incentives structures required to ensure that these arrangements are attractive to small business.

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THE ROLE AND ACTUAL LENDING BEHAVIOUR OF A POLICY FINANCE INSTITUTION IN VIETNAM: THE CASE OF THE DEVELOPMENT ASSISTANCE FUND

ABSTRACT

An underlying problem facing transition economies is a lack of adequate institutional development as a means for correcting market failures. In this paper we examine the potential for policy finance to play an appropriate role in credit rationing, as in other Asian countries, using the Development Assistance Fund (DAF) as a case. Our survey results indicate that policy finance in Vietnam has yet to satisfactorily perform the role intended for it, because of inadequate establishment and institutional development.

The DAF is taking steps to protect itself from risk, particularly that associated with lending to small and medium sized non-state enterprises. This has involved the establishment of a set of strict checks and complex procedures, leading to credit rationing. Given inadequate support from the DAF, non-state-owned companies are increasing their dependence on financing in the form of personal borrowing or by delaying payment to cope with shortages of funds. Thus these fund-procurement methods have become a substitute for the role expected of policy finance.

JEL Classification Numbers: G18, G21, D02

Key Words: policy finance, Vietnam Development Assistance Fund, institutional development, small and medium enterprises, credit rationing

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1. INTRODUCTION

In general, the role of policy finance is to compensate for the limitations of fragile market mechanisms and support markets and, in a number of developing countries with particularly weak markets, policy finance plays a very important role in this area (Okuta and Kurosawa, 1997). First, in the financial sector where high-level expertise is required, and where there tend to be economies of scale, a natural monopoly or oligopoly of a handful of finan-

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cial institutions tends to emerge. This market concentration brings windfall profits to the participants. The role of policy finance is to establish a channel for providing funds to small- and medium-sized enterprises (SMEs), potential borrowers that face funding constraints in such an oligopolistic situation. Second, policy finance is expected not just to adopt as new customers small- and medium-sized private companies that face serious problems with information asymmetry, and require assistance with the cost of information processing, but also to shoulder investment risk. Third, given the emergence of external economies, policy finance is expected, as a response to the problem of information asymmetry, to bear the sunk costs for the development of systems and information. Getting reluctant private sector financial institutions to shoulder this cost requires securing excess profits through the artificial manipulation of interest rates (Hellman, *et al.*, 1997).

In the developing countries in Asia, it was expected that policy finance would be able to adequately deal with the establishment of funding channels for potential borrowers subject to credit rationing and the formation of systems. While policy finance is often viewed in a negative light because it is perceived as wasting resources or encouraging the emergence of cosy ties between governments and companies, a study by the World Bank concludes that policy finance can function effectively when “subsidy elements are small, loans are paid back and rigid standards are applied to the distribution of funds” (World Bank, 1993), citing the examples of Japan, Korea, Taiwan and China. For example, the policy finance of the former Japan Development Bank (JDB) was characterised by its function of inducing the capital flow from private financial institutions towards politically preferred industries and enterprises. The function means that the granting of credit by the JDB itself was a way of information disclosure of its preferences. Moreover JDB was supported by the credibility of its evaluation of investment projects and enterprises’ economic performance, based on its competence in information production and management (Higano, 1984).

What is the role of policy finance in countries such as Vietnam, where economic transition is going on in parallel with development? In the socialist economy, banks were only given the role of cashiers under a mono-bank system, with the whole spectrum of finance being dictated by the government. In an economy in transition political influences are eliminated, where possible, and finance is provided mainly through the market mechanism. When an economy in transition is also a developing country, policy finance, while in high demand, is narrow in scope; its role is limited to supplementing the markets.

In Vietnam, the Development Assistance Fund (DAF) was established under Decree No.50/1999/ND-CP (July 8, 1999). DAF provided for the integration of the policy finance functions that had been performed, even after the introduction of the *Doi Moi* policy, by several government investment agencies

and state-run commercial banks. Under Decision No.108/2006/QĐ-TTĐ of 2006, the DAF was reorganised into the Vietnam Development Bank (VDB), with further efforts being needed to remove the elements of subsidisation from its operations and to improve its screening capacity and risk management. In this paper, we examine whether this policy finance institution is an entity that is capable of performing its expected role and function in an economy in transition, based on examination of its actual operations.

Despite statistical constraints, we conducted a survey on companies that had successfully borrowed funds from DAF. On the basis of the questionnaire data collected in the survey we attempt to examine the real micro aspects of DAF's functions and its institutional development. Though there exist some reports on DAF (International Monetary Fund, 2006; Japan Economic Research Institute, 2003; Ministry of Planning and Investment (Vietnam) and Japan International Cooperation Agency, 2001), little empirical analysis has been done based on micro-level data relating to credit rationing.

Section 1 provides an overview of reforms to date in Vietnam's financial sector, the overall financial conditions, and the positioning of the DAF. In Section 2, after looking at the purpose of the DAF's establishment and its internal mechanisms, we analyse whether it is an institution that can properly perform a role complementing the market. This is based on the results of our own examination regarding its functions and institutional development. Section 3 examines public support programs for private-sector small- and medium-sized companies other than the DAF, as well as the informal methods of fund procurement used by such companies. Finally, in the last section we offer a conclusion and summarise the problems with Vietnam's policy finance.

2. THE CURRENT STATE OF VIETNAM'S FINANCIAL SECTOR

2.1. RENOVATION OF THE FINANCIAL SYSTEM

After commercial operations were separated from the central bank in 1988, private-sector banks were given the green light to enter the market in 1991-1992. Since this time financial institutions have both increased in number and diversity (Chart 1, below). There now are: four state-owned commercial banks (SOCBs), being the Bank for Foreign Trade of Vietnam, Bank for Investment and Development of Vietnam, Industrial and Commercial Bank of Vietnam, and Vietnam Bank for Agriculture and Rural Development; three policy financial banks; 35 joint stock banks; and five fully-licensed joint-venture banks. Additionally, Vietnam's banking institutions also include small-scale credit organisations that provide financial assistance, focusing on agricultural areas, in the form of 942 People's Credit Funds. As non-banking institutions there are seven stock companies and eight leasing companies nationwide.

However, the emergence of problems with nonperforming loans (NPLs) that has accompanied the increase in the number of banks, the deterioration of fiscal conditions, and the impact of the Asian currency crisis, has made it necessary to find a way to stabilise the country's financial system. This has called for a qualitative shift in financial sector reform. Thus there has been a move from the diversification of and establishment of legal foundations for financial institutions in the 1990s, towards strengthening of the supervisory system and improvement of organisational and institutional aspects (e.g., led by the World Bank and International Monetary Fund).

Specifically, as the banks were restructured, joint-stock commercial banks with low capital adequacy ratios and weak management bases had their business licenses removed and were disbanded. As a result, the number of such banks declined from 51 in 1998 to 35 in 2004. In the state sector, policy financing was divested from SOCBs and, in 1999, the DAF, Vietnam Bank for the Poor (renamed the Vietnam Bank for Social Policies in 2002), and the Mekong Delta Housing Bank were established. Public funds were injected by the Social Fund into SOCBs, under the condition that they would improve their risk management and screening of loan requests. NPLs were written off or transferred to asset management companies. The government reduced the volume of direct loans to banks and imposed prudential regulations. This requires SOCBs to adopt international accounting standards, improve the disclosure of information, maintain Bank for International Settlements (BIS) capital adequacy ratios of at least eight per cent and keep the ratio of NPLs to total loans outstanding to no more than four per cent. However, while the capital of all financial institutions increased 3.5 times from 2001 to 2004, the capital bases of banks in the state and non state sector are still weak. This makes fund procurement from the market increasingly more important year by year. For example, in 2005 the Bank for Foreign Trade of Vietnam (VCB) and the Mecon Housing Development Bank issued stock (International Herald Tribune, 2006), followed by the other three SOCBs in 2006 (International Herald Tribune, 2006).

With regard to interest rates (Appendix 1), the restriction on spreads was removed and lending rates for both U.S. dollar- and Vietnam dong (VND)-based loans were liberalised. However, banks still have limited freedom in this area. A system is in place under which financial institutions set interest rates within a prescribed range of fluctuations on the basis of rates determined by the State Bank of Vietnam (SBV). Thus, it can be assumed that banks only have limited scope in acquiring surplus funds, still have low capital adequacy ratios, cannot afford to extend much lending due in part to the problem of NPLs, and are constrained in bearing the cost of developing and improving their systems.

2.2. THE CURRENT STATE OF FINANCE

The Vietnamese economy was stagnant in 1998 and 1999 in the aftermath of the Asian currency crisis, but recovered in 2000 (Table 1). Since then it has maintained a growth rate in the range of seven per cent. The growth of the industrial sector has been stronger, with the manufacturing and construction industries driving the country's economic expansion. The shares of both State-owned Enterprise (SOE) and non-SOE in GDP have not changed since 1996.

TABLE 1. – Macroeconomic Environment

	1996	1997	1998	1999	2000	2001	2002	2003	2004 Est.
Real GDP (% p.a. change)	9.3	8.2	5.8	4.8	6.7	6.9	7.1	7.3	7.7
Agriculture (% of GDP)	4.4	4.3	3.5	5.2	4.6	3.0	4.2	3.6	3.5
Industry (% of GDP)	14.5	12.6	8.3	7.7	10.1	10.4	9.5	10.5	10.2
State sector (% of GDP)	39.9	40.5	40.0	38.7	38.5	38.4	38.4	39.1	39.2
Non-state sector (% of GDP)	60.1	59.5	60.0	61.3	61.5	61.6	61.6	60.9	60.8
Investment/GDP (%)	28.1	28.3	29.0	27.6	29.6	31.2	33.2	35.1	35.6
Saving/GDP (%)	17.2	20.1	21.5	24.6	27.1	28.8	28.7	28.2	-
Total Deposit/GDP (%)	15.3	18.0	20.9	29.8	38.4	44.1	47.5	52.2	59.8
Credit by DMBs/GDP (%)	18.7	19.9	20.1	28.2	35.2	39.2	43.1	48.3	58.9

Sources: State Bank of Vietnam, International Monetary Fund (2002, 2004), Asian Development Bank.

The investment to GDP ratio began to recover in tandem with the progress in industrialisation. However, because of a low saving rate the investment-savings gap remained relatively high. Though the ratios of both deposit and credit to GDP have continued to rise year by year, their levels are still rather low. This is because incomes are low, the economy works on a cash basis, and banking functions are still underdeveloped.

Table 2 indicates that banks had the biggest share of assets of all financial institutions and, importantly, that SOCBs had more than 75 per cent of the market share in both deposits and lending which led to their oligopoly (Table 3).

TABLE 2. – Proportion of Total Assets of Financial Intermediaries

	Year	2002(%)	Year	2003(%)
Financial intermediaries	Percentage of total assets	Percentage of GDP	Percentage of total assets	Percentage of GDP
Banks	81.9	43.0	82.3	52.0
Insurance Com.	2.6	1.3	2.7	1.35
Stock Exchange	3.4	1.65	3.7	2.3
Investment Fund	10.3	5.3	9.7	6.0
Others	1.8	–	1.6	–
Total	100		100	

Source: International Monetary Fund, State Bank Vietnam, Ministry of Finance, Ministry of Planning and Investment and United Nations Development Program Study on Competitiveness and Impacts of Liberalization of Financial Services, and author's calculations.

MPI data shows the rising ratio of policy to total finance following its separation from the state budget. The lending of the DAF accounts for 13 per cent of total social investment capital and 24 per cent of loans (2002), suggesting that the DAF is taking an important position as a source of investment capital. Actually the DAF is one of Vietnam's largest financial institutions in terms of chartered capital and outstanding loan portfolios, ranking second, after VBARD, among the four state-owned commercial banks.

TABLE 3. – Market Shares of Commercial Banks (%)

	2000	2001	2002	2003	2004
1. Market share in deposits					
SOCBs	77.0	80.1	79.3	78.1	75.2
Joint Stock Banks	11.3	9.2	10.1	11.2	13.2
Joint Venture Banks	–	–	–	–	–
Branches of Foreign Banks	–	–	–	–	–
Others	–	–	–	–	–
<i>Total</i>	88.3	89.3	89.4	89.3	88.4
2. Market share in lending					
SOCBs	76.7	79.0	79.9	78.6	76.9
Joint Stock Banks	9.2	9.3	9.5	10.8	11.6
Joint Venture Banks	1.0	1.0	1.1	1.2	1.2
Branches of Foreign Banks	11.3	9.5	7.7	7.7	8.3
Others	1.8	1.2	1.8	1.7	2.0
<i>Total</i>	100.0	100.0	100.0	100.0	100.0

Source: State Bank of Vietnam (2005).

3. BACKGROUND OF THE DEVELOPMENT ASSISTANCE FUND

The DAF was established in 1999 based on a reorganisation of the Ministry of Finance's (MOF's) Department of Investment Development and the Investment Support Fund (Japan Economic Research Institute, 2003). The DAF took over the lending portion of policy finance previously undertaken by the Investment Development Directorate General, while the MOF remained responsible for public investment using public funds.

The Prime Minister's Office, an institution under the direct control of the Prime Minister, has jurisdiction over the DAF, while its actual operations are undertaken under management and supervision of the MOF and the Ministry of Planning and Investment. A five-member Board of Management serving under the Prime Minister and the MOF provides the management executive for the DAF. This group is comprised of the previous governor and current governor of the DAF, the Vice Minister of Finance, the Vice Minister of Planning and Investment and the Deputy Governor of the Central Bank. The group has the power to make decisions on important matters.

The Board of Directors responsible for actual day-to-day operations is comprised of the DAF governor and three deputy governors. All directors hail from the MOF, or are officials on loan from the MOF. This reveals that the DAF was institutionalised in such a way that it can not avoid the influence of government, especially of the MOF.

The DAF, which is wholly owned by the government, was launched with a number of purposes in mind. First was to move away from the direct state-funded system of subsidies. Second was to build-up business-like consciousness and rational management systems. Third was to strengthen international competition and macroeconomic stability. Finally was to develop industrialisation and modernisation.

One of its main tasks is to independently raise the necessary financial resources. In financial year 2004, 18.2 per cent of its total financial resources came from postal savings and borrowings from the social security account. Proceeds from bond issuance accounted for 33.5 per cent. Official Development Assistance (ODA) contributions accounted for 46.1 per cent of funds. The share of government capital contributions has declined remarkably as compared to the funding composition at the time of DAF's establishment in 2000, so that the need to accumulate from the market has expanded year by year.

The DAF's second task is the supply of funds in a variety of modes. First, is medium-term and long-term loans with preferential interest rates. Second, interest subsidies for projects already under way, set at 50 per cent of total interest payments. Third is the making of debt guarantees, these being no larger than the amount of lending. Fourth is provision of short-term loans for the promotion of exports at a preferential interest rate. Fifth, and finally, is

the lending of ODA funds. DAF funds to each of these categories were allocated 56.86, 0.42, 0.02, 17.09, and 25.58 per cent, respectively.

With respect to medium- and long-term loans, the lending period is up to 10 years, in principle. The interest rate is set at a uniform 5.4 per cent per annum (compared to commercial banking rates that range from 8.0 per cent to 8.5 per cent), with a preferential interest rate below the uniform rate being applicable to loans of a highly public nature and loans to prioritised industry sectors (such as shipbuilding and agricultural machinery) (Japan Economic Research Institute, 2003).

As shown in Table 4, projects eligible for DAF loans under Decree No.12/2000/Nd-CP are categorized into groups A, B and C according to the loan amounts. The entities that are designated to screen investment projects and determine the advisability of lending differ for each group. Large-scale projects in Group A are screened by DAF head office and approved by the Prime Minister. Medium-scale projects in Group B are screened by the DAF branches and approved by the fund's board of directors or the DAF's director general. Small-scale projects in Group C are screened and approved by the DAF branches (Decree No.12/2000/Nd-CP: 30). However, in the case of SOEs even Groups B and C are reported to have been decided by the related ministry and the People's Committee. This is despite the DAF having supposedly been placed in full charge of all credit examinations and lending decisions since March 2003.

The IMF Country Report on Vietnam for financial year 2006 states that while large-scale projects in Group A remain subject to screening by the DAF head office (or the Ho Chi Minh City regional office for the southern part of the country) and approval by the Prime Minister, those in Group B and Group C are screened by DAF branches and approved by relevant government ministries and agencies or people's committees (IMF, 2006: 15). Thus, DAF is effectively authorized to make independent decisions only on medium- and small-scale projects of private sector. The groups, ownership modes, and DAF fund allocation quotas for each sector are shown in Table 5, where the ratios are high for Group B, the state-owned sector, and the construction and industrial sectors.

Under a 2006 decision by the Prime Minister's Office, the DAF was reorganized into the Vietnam Development Bank (VDB), a non-profit institution with capital of VND 5 trillion. The reorganization was carried out in response to a request from the World Trade Organization (WTO) for the conversion of the DAF from a subsidising institution into a commercial bank. With financial support from the government, the new bank, which is tax-exempt and has a reserve ratio of zero per cent, is designed to focus on poverty reduction and export promotion, and is intended to develop means of lending and systems on a more commercial basis.

TABLE 4. – Development Assistance Fund Investment Categories

Description of investment projects	Group A	Group B	Group C
1. Projects under the domain of national security and defense, national secrecy or important socio-political significance; the building of new industrial parks; and investments in production of noxious substances and explosives.	Unlimited	n.a.	n.a.
2. Related to power, oil and gas exploitation, chemical and fertilizer, machine building, cement, metallurgy, mineral exploitation and processing industries; major traffic infrastructure projects (bridges, ports, railways, highways); and the building of residential quarters.	Over VND 600 billion	Between VND 30 and 600 billion	Less than VND 30 billion
3. Related to irrigation, traffic (except those under point 2 above), water supply and drainage, technical infrastructure, electric technology, production of information, electronic, informatics, chemo-pharmaceutical, medical equipment, and other mechanical engineering structures.	Over VND 400 billion	Between VND 20 and 400 billion	Less than VND 20 billion
4. Related to light industry, chinaware, porcelain, glassware, printing; national parks, nature conservation zones, agricultural and forestry production, aquaculture, agricultural and forestry products processing.	Over VND 300 billion	Over VND 300 billion	Less than VND 15 billion
5. Related to healthcare, culture, education, radio, television broadcasting, other civil construction (excluding housing), warehousing, tourism, physical training and sports, scientific research and other projects.	Over VND 200 billion	Between VND 7 and 200 billion	Less than VND 7 billion

Source: International Monetary Fund, 2006.

TABLE 5. – State Credit Loan Portfolio (end 2004)

	Number of Projects	Outstanding Loans (VND billion)	Percent	Average Loan Size (\$US million)
By Project Groups	5,924	38,395	100.0	0.412
Group A	78	10,964	28.6	8.925
Group B	469	14,649	38.2	1.983
Group C	5,377	12,782	33.3	0.151
By Ownership	5,924	38,395	100.0	0.412
SOE	2,954	34,068	88.7	0.732
Non-SOE	2,970	4,328	11.3	0.093
By Sector	5,924	38,395	100.0	0.411
Construction and Industry	2,915	24,767	64.5	0.539
Transportation	287	5,559	14.5	1.230
Agriculture, Forestry, Fisheries	1,970	6,379	16.6	0.206
Other	752	1,689	4.4	0.143

Source: International Monetary Fund, 2006.

4. SURVEY AND RESULTS

From 2004 through 2005, we conducted a field survey on DAF and borrower companies in order to ascertain the mechanism for DAF credit granting, the criteria used for lending decisions, the credit risk management systems in place, and problems in loan collection and borrower bankruptcy procedures. The survey consisted of direct interviews with the DAF staff² and a questionnaire survey with a total of 279 of its borrower enterprises (from 2000-2003). The survey was conducted under cooperation with the National Centre for Social and Human Sciences, Institute of Economics in Vietnam.

Out of 279 firms surveyed, valid data was obtained from 263 companies, among which 119 were SOEs, and 144 non-state companies. Of these non-state companies there were 30 collectives, 92 private companies, and 22 joint-venture or joint-stock companies. Some of the latter groups were previously owned by the state, and their major share holders could still easily be imagined as belonging to the state. The sampled enterprises covered mostly all industries and areas (north, central, and south). The structures of industry and location of sample enterprises are shown in Tables 6 and 7.

While sample companies were selected by the above centres, there were various limitations and the selection was not precise. As such, it should be noted that there is some unavoidable bias in the results.

² In January 2005 we had an interview with a DAF staff member. The individual was 50 years old, a State Economics University graduate, a manager of the public and private investment credit section since DAF established, and in charge of 19 staff.

TABLE 6. – The industrial structure of sample enterprises

Industry	State	Non-state
Agriculture & Forestry	4	2
Fishing & Aquaculture	2	29
Food processing & Beverages	20	22
Rubber, Footwear & Sports goods	3	2
Furniture	2	13
Paper & Printing	5	19
Textile & Garment	26	13
Ceramics & Glass	1	5
Construction & Its materials	15	13
Shipping	9	0
Chemical & Medicine	2	2
Mechanical	12	10
Metals	4	2
Mining	7	3
Transportation & Its equipment	4	4
Trading	3	5
Total	119	144

Source: Author survey.

TABLE 7. – Locations of sample enterprises

	Region			Total
	North	Central	South	
SOE	70	20	29	119
Non-SOE				
Collectives	12	17	1	30
Private	63	6	23	92
Share holding companies	11	7	4	22

Source: Author survey

4.1. LENDING DECISION CRITERIA AND DISPARITIES IN THE GRANTING OF CREDIT

Based on the basic data collected from the companies we surveyed (Table 8), we examined the characteristics of companies that received DAF funding by type of ownership. This was in an attempt to estimate the actual criteria for lending decisions, by looking at how the examination items are applied to reach decisions. The DAF interview survey by the Japan Economic Research Institute found that the credit screening formally consisted of: (a) project feasibility studies; and (b) examinations of individual borrower companies. The examination items in (a) include markets (market size, demand, etc.), technology levels, environmental impact, basic infrastructure at points of in-

vestment, funding plans and investment efficiency. Those in (b) include the legal status of borrowing companies, financial conditions, the industry situation, managerial capabilities and collateral. As adequate collateral real estate, personal assets, and assets to be financed with the potential loans, generally meaning claims on land, are accepted.

TABLE 8. – Basic Data of Sample Enterprises

Ownership type (samples)	State- owned (119)	Non-state (144)			
		Total (144)	Collective (30)	Private (92)	Others (22)
Year of Establishment	1981	1994	1998	1996	1979
Payroll (VND million)	1086.0	207.0	30.0	185.0	511.0
Total Fixed Assets (VND million)	58104.7	13538.2	1923	10612	34972
Total Fixed Investment (VND million)	19433	4488.7	761.2	4603	6853.2
Total Sales (VND million)	118784.7	25520	2090.2	23500	55741.2
Total Profit (VND million)	81.9	275.4	25.2	366.3	329
Profit Rate (%)	0.068	1.079	1.205	1.558	0.59
Labour Productivity	109.3	123.2	69.67	127.02	109

Source: Author survey.

Notes: Figures provide average number for all sample enterprises in each category from 2000 to 2003. Others indicate joint-venture or joint-stock companies.

Our data shows that successful SOEs had long histories, high average numbers for total fixed assets, payrolls and gross sales; non-state companies tended to be small, and to have high rates of profit and productivity. These data and information indicate that SOEs, when applying for loans, are positively evaluated for the time since their establishment, meaning the duration of their business relationships with (state-run) financial institutions, and their size. For non-state companies, high operational performance is a favourable condition for receiving credit, in line with the interview surveys cited earlier.

With regards to collateral, the ratio of companies saying that they absolutely must meet collateral requirements is higher among non-state companies at 64.1 per cent for private companies, against only 26.9 per cent for SOEs. However, it should be noted that the DAF treats share holding companies that used to be state-owned more like SOEs, which makes this ratio lower than it would be otherwise. If we include those who replied that they were required to put up collateral, though not all the time, the ratio would exceed 80 per cent for private-sector companies compared with less than 30 per cent for SOEs. Depending on the length of the business relationship and the size of the business, SOEs appear to be highly rated in terms of their capacity to

offer sufficient collateral to cover their borrowings. However, it is difficult for private-sector companies to obtain legal papers that can be used as collateral, such as certificates of land-use rights and property ownership rights, and they are required to go through complex bureaucratic procedures or to “pay fees equivalent to about 25% of the value of the property” (Horiuchi and Watanabe, 2001; Nguyen, 2001). When an applicant for credit does not own assets with value, the objects for which finance by credit is being applied are supposed to be treated as the collateral. However, there is an unrealistic legal provision that such objects cannot be recognized as collateral until the extension of the credit is decided.

As seen above, SOEs are evaluated on the basis of their size, and on the value of their collateral. At the same time the web of personal connections built up during their histories, and their information advantages resulting from it, work in their favour. This is not very different from the conventional way of screening, with the backing of state guarantees, in the period of the planned economy. On the other hand, more objective criteria, including business performance, productivity and collateral, are used to consider the availability of credit to non-state companies. Thus, DAF adopts stringent lending criteria, and imposes tough borrower qualifications, which few non-state-owned companies are capable of satisfying. The cumbersome loan application procedures and hard-to-meet qualifications essentially make it impossible for non-state-owned companies to gain access to DAF credit, or even discourage these companies from filing applications for loans altogether.

4.2. HOW TO DEAL WITH CREDIT RISKS

A survey interview of officials of DAF indicates that borrowing companies, whether state-owned or non-state-owned, tend to submit inaccurate investment reports, possess only low levels of management and marketing capability, lack the willingness to engage in proper economic activities, frequently change management strategies and policies, and lack long-term development strategies. Some companies with deteriorating financial conditions resort to impulsive actions in total disregard of their obligations to creditors. These include multiple borrowings, or disposing of collateral, ignoring the contract with their existing creditors. It seems unlikely that the DAF's functions and powers are able to cope fully with the risks brought by these potential borrowers that so lack entrepreneurship.

The survey results suggest that the DAF does not rate borrowing companies. In terms of access to reliable information on borrowers, the DAF, unlike foreign-affiliated banks, does not collect information from a variety of sources, such as that on related industries, organizations and customers provided by the mass media, or that available through networking with the Credit Information Centre (CIC), and business guarantee registration and notarisation services. Instead the survey shows that as a method for monitoring borrow-

ers' financial conditions and regulation of repayments after implementing the contract, the DAF has made information collection and periodical visits to most of the sample enterprises.

When violation of a contract is disclosed, the loan contract does have provisions for its cancellation before maturity, or for progressive payment. At present, however, this system is not functioning effectively. Given the need for improvement, a risk prevention and management centre was established within the DAF in September 2004.

Many loan officers at the DAF are university graduates who majored in economics, finance, corporate finance and accounting. However, as they have few skill development and training opportunities, other than a few months of on-the-job training, it is said that the level of expertise of the staff leaves much to be desired. Each loan officer is assigned to handle only 10 or so loan cases. Each is supposed to look after the whole spectrum of loan processing for the cases under his or her jurisdiction, from the acceptance of the loan application to the conclusion of the loan contract. However, the DAF has no system in place under which loan officers face penalties, or otherwise have to take responsibility, in the event of a default by a debtor or other breach of a loan contract.

4.3. THE RIGHTS OF CREDITORS

For creditors, the recovery of claims is an important process. However, it involves complicated procedures and requires a long time, and since the recovery process lacks legal force the rights of creditors are not fully guaranteed.

In order to find out how much the rights of creditors are guaranteed when calling in a credit obligation, and who has the authority to dispose of the assets of failed borrowers, we asked borrowing companies a number of questions. The questions were intended to identify which of the following related entities have the power to decide, supervise and seek information regarding surveyed companies' management, investment planning, *ex post facto* actions such as asset disposal, and the assistance necessary for the reconstruction of borrower companies. These related entities include: the Prime Minister's Office; Ministry of Finance; Ministry of Investment Planning; other ministries with jurisdiction over companies; local administrative entities; general corporations to which borrowing companies belong to; communist party organizations; financial institutions associated with the DAF; and stakeholders, such as the company director, management executives and shareholders. Replies to these questions are summarised in Tables 9.1 and 9.2 for both surveyed SOE and non-state companies borrowers for which the DAF has a right to supervise and seek information regarding companies' management, investment planning, asset disposal, as well as reconstruction.

TABLE 9.1. – Rights over State-owned Enterprises – (1) Decision Right, (2) Right of Supervision, (3) Right of Seeking Information (Sample No. = 119)

Right	Management			Investment plan			Asset Disposal			Reconstruction			Total		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Prime Minister's Office	1	0	0	5	0	0	2	0	0	2	0	0	10	0	0
Ministry of Finance	0	12	40	1	11	8	18	0	12	4	1	10	23	24	70
Ministry of Investment Planning	0	7	8	6	18	12	1	6	6	2	7	6	9	38	32
Related Ministries	1	29	41	6	16	16	25	8	23	10	7	13	42	60	93
Local Government	1	23	29	12	8	9	29	1	3	5	1	2	47	33	43
General Corporation	9	47	35	46	13	24	28	10	5	27	4	3	110	74	67
Communist Party	0	6	10	3	5	3	9	0	2	5	0	0	17	11	15
General Director	117	0	0	61	3	3	3	1	0	12	1	1	193	5	4
Management Board	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Shareholders	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DAF	0	42	70	2	59	68	3	56	42	47	14	18	52	171	198
Main Banks	0	58	75	0	59	68	0	73	56	61	14	15	61	204	214

TABLE 9.2. – Rights over Non State-owned Enterprises – (1) Decision Right, (2) Right of Supervision, (3) Right of Seeking Information (Sample No. = 144)

Right	Management			Investment plan			Asset Disposal			Reconstruction			Total		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Prime Minister's Office	0	0	1	0	0	1	2	0	0	0	0	0	2	0	2
Ministry of Finance	0	4	12	0	3	0	1	4	3	0	2	0	1	13	15
Ministry of Investment Planning	0	0	3	1	2	5	0	0	1	0	2	0	1	4	9
Related Ministries	0	7	2	1	8	2	1	6	0	2	3	0	4	24	4
Local Government	0	4	15	0	7	7	4	4	5	1	3	7	5	18	34
General Corporation	0	2	2	2	1	2	2	2	0	2	1	0	6	6	4
Communist Party	2	17	45	2	10	10	26	13	11	6	6	8	36	46	74
General Director	122	0	0	73	6	0	39	0	0	32	0	1	266	6	1
Management Board	18	1	1	10	3	5	11	0	0	9	0	0	48	4	6
Shareholders	5	67	39	61	10	10	55	3	4	18	8	9	139	88	62
DAF	0	59	104	3	86	73	8	62	41	81	21	22	92	228	240
Main Banks	0	48	72	0	58	47	2	52	32	60	13	18	62	171	169

Source: Author survey.

The fact that no right to decide asset disposal from failed borrowers is given to the DAF and other banks, reveals that creditors are not in a position to be sure of the recovery of claims. Thus they must contend with the risk of losses. In the case of SOEs, there were many instances of political settlements under which the state, rather than the DAF, ultimately shouldered the bad debts, indicating that the system of the state taking on losses is ultimately not much different from that under a planned economy. In contrast to bad loans to SOEs, the DAF cannot evade the responsibility for covering NPLs to non-state-owned companies. Thus, the DAF has motivation to avoid risk by selecting less risky borrowers via costly selection and screening processes.

5. PUBLIC FINANCE FOR SMALL BUSINESSES IN THE PRIVATE SECTOR AND INFORMAL FUND PROCUREMENT

5.1. NON-DAF PUBLIC FINANCING PROGRAMS FOR SMALL BUSINESSES IN THE PRIVATE SECTOR

The Ministry of Finance's credit cooperative and the Agency for Small and Medium Enterprise Development (ASMED), which is under the aegis of the Ministry of Planning and Investment, are planning and launching measures for the promotion of small- and medium-sized companies. Amongst the programs currently under implementation are the following, which are being carried out even as ways are being sought to resolve their respective problems.

Credit Guarantee Funds (GFDs) Under Decision No.193/2001/QD-TTG, the government decided to establish and operate public credit guarantee organisations for loans to small- and medium-sized companies at the People's Committees of all 46 provinces in Vietnam. In Ho Chi Minh City, where 47,000 of the 48,000 existing companies are in the private sector, with 90 per cent being small- and medium-sized companies unable to obtain bank loans due to insufficient collateral, a CGF was to be established with capital of VND 50 billion (3.3 million USD) as of 2006 (Vietnam Net Bridge, 2006). This CGF, which was designed to promote job creation, the introduction of new technologies and the development of export industries, is to guarantee up to 80 per cent of the difference between total lending amounts and the value of collateral for companies in the city's key industries. Companies seeking credit guarantees must submit business plans with feasible production goals and must put up collateral with a value at least equivalent to 30 per cent of the loan amount. As of December 2006, four CGFs have been established, but it is reported that they have yet to funnel funds to any company (Vietnam Economic News, 2006). CGFs are basically designed to provide guarantees for companies that cannot obtain loans from banks, and there is still a need to speedily remedy problems involving the management of loans after the execution of lending and guarantee ratios.

The Japan Bank for International Cooperation's Two-Step Loan Program In March 2000, the Japan Bank for International Cooperation (JBIC) concluded a business cooperation agreement with the VDB and began to carry out co-operation for the purpose of supporting financing for small- and medium-sized companies in the private sector. The loans are provided in a two-step process, with the JBIC extending funds to local financial institutions, and those institutions using the funds as loans to borrowers, with the VDB taking the lending risks. Under the loan execution deadline set for July 28, 2010 as part of this scheme, VND 4,144 million in loans have been committed but not yet approved, and VND 6,148 million have been disbursed, with the State Bank of Vietnam serving as a local agent. JBIC funds flow to end users from participating local financial institutions after going through the government and the central bank. Qualified borrowers are private-sector companies with registered capital of less than VND 10 billion and an average annual work force of less than 300 (joint-stock companies, limited-liability companies, joint-venture companies and sole proprietorships). There are no limitations on the industry sectors of these companies. In principle, interest rates are not regulated, and participating financial institutions set interest rates independently. The ceiling on lending is set at VND 20 billion per sub loan, but the ceiling on lending for financing initial operating capital is set at a maximum 20 per cent of total investment. The lending period is up to 10 years for capital investment and up to one year for working capital.

According to a survey conducted by the Japanese side, so far the two-step process is not widely used because of the troublesome and inconvenient borrowing process. For example, Kenichi (2006) comments that "While the interest rate is low at 5.5% a year, some borrowers were asked to increase the amount of borrowing by 10-fold and spend six months or longer in the preparation of necessary documents. What is needed is quick working capital, and the process of borrowing is not convenience for borrowers."

5.2. INFORMAL METHODS OF FUND PROCUREMENT

Our survey found that the development of funding channels for private-sector small- and medium-sized companies by the DAF and the easing of credit rationing are both inadequate. Non-DAF public funding programs are also in place, but they are still in a state of development and are far from established. This leads use to ask: What means are small- and medium-sized companies, who have little access to funds, employing to make up for the funding shortfalls?

Informal Borrowings Borrowing from the informal sector has been a very popular means of fund procurement in Vietnamese society, and widely utilized even after the *Doi Moi* reform. The sources of this funding differ, with SOEs mainly raising funds from insiders, such as in-house workers or managers; non-state-owned companies get funds chiefly from relatives of corpo-

rate managers and informal individual moneylenders. The duration of borrowing varies. Based on our survey data, 27.7 per cent of SOEs and 39.6 per cent of non-state-owned companies are making interest payments on these borrowings.

This informal borrowing is a convenient way to raise funds without collateral or management intervention. Thus it is frequently used as a means to absorb cash flow fluctuations when borrowers face funding problems due to such factors as rises in the prices of input goods, difficulty in collecting accounts receivable, declines in the selling prices of products, falls in total sales, and also to cope with credit rationing. As many as 45.8 per cent of non-state-owned companies replied in our survey that they make use of this conduit of funding either all the time or sometimes, particularly in emergencies, with dependence on this method being far higher than the 27.7 per cent for SOEs. When they need to raise funds SOEs, which are bolstered by debt guarantees by the state, first go to banks or policy finance institutions and then, if necessary, seek to delay payment of accounts payable. However, the first choice for non-state-owned companies is this personal borrowing from the informal sector.

Business-to-Business Credit Business-to-business credit among enterprises is a unique practice of settlement that has long existed in Vietnamese society. It involves the delay of payments for accounts payable. The practice arose due to it being institutionally difficult for companies to retain profits internally under the previous regime, and since borrowing from banks was not possible. This was particularly the case when they needed more funds than those available under government-determined plans, with the practice existing alongside the raising of funds in the form of informal borrowings from outside described above.

McMillan & Woodruff (1999), and Goto (2005) described the credit settlement method called "*Gai Dau*". This represents the combination of a partial cash payment with delayed settlement of accounts payable on the rest. It is employed by small-scale enterprises in the apparel distribution sector in the southern part of the country, being a close-knit and very common form of transaction that can be conducted repeatedly. Our own survey also found that account settlements on credit were conducted among sample enterprises (Table 10).

The average ratio of accounts receivable and payable demonstrates that SOEs have higher ratios of accounts payable than non-state-owned companies (Table 10). This is because delayed settlements of accounts payable are presumably allowed on the basis of long-term business relationships. SOEs, with a longer history of operations, appear more likely to stick with the traditional business practice. It is also possible that SOEs are in relatively poor financial condition. Of the SOEs surveyed 36.1 per cent feel they are hard pressed, compared to 23.6 per cent of non-state-owned companies. However, the ra-

TABLE 10. – **Business-to-Business Credit (end of year)**

	2000		2001		2002		2003	
	SOE	Non-SOE	SOE	Non-SOE	SOE	Non-SOE	SOE	Non-SOE
Accounts Receivable (% of Total Sales)	12.8	12.1	14.7	14.3	16.1	13.7	18.3	17
Accounts Payable (% of Total Cost)	37.7	11.1	34.5	13.6	25.5	13.3	27.0	17.4

Source: Author survey.

tio of accounts payable to sales has been declining over the 2000 to 2003 period at SOEs, while it has tended to rise for non-state-owned companies. This suggests that non-state-owned companies may have a greater incentive to increase their dependence on accounts payable, as they have only limited fund-raising channels and their access to external financing such as bank loans and policy finance remains difficult.

6. CONCLUSION

In this paper we have tried to examine the potential for policy finance to play an adequate role in credit rationing, as in other Asian countries, using the DAF as an example. In doing so we recognise that one of the underlying problems facing transitional economies is inadequate institutional development, including the availability of such organisations as the DAF, as a means for correcting market failures in such areas as credit provision.

We selected a total of 279 companies that had successfully borrowed funds from the DAF. Our aim was to examine and analyse, from the perspective of a borrower, the DAF's lending decision criteria, its credit risk management system, and problems in its loan collection and bankruptcy procedures.

Our survey results indicate that the DAF has been given lending autonomy only in the case of non-state SMEs. Where lending concerns SOEs and larger investment projects, the government has screened and approved in the same way as under the previous regime.

The DAF has closely checked the creditworthiness of potential borrowers. However, inadequacies in its establishment and institutional development, along with inadequate protection of creditor rights in loan collection, suggest that it restricts credit to non-state-owned companies. While not explicitly showing an intention to restrict access to credit for non-state-owned companies without state guarantees, it has taken steps to protect itself from risks by more strictly checking the repayment ability of potential borrowers, demanding better collateral, and setting out more complex procedures. Under such credit rationing, and thus inadequate support from the DAF, non-state-owned companies are trying to cope with fund shortages by increasing their

dependence on financing with personal borrowings from the informal sector or delayed payments using accounts payable. That these fund-procurement methods still exist as casual business practice indicates that the credit system is still underdeveloped, and that they have substituted for the role expected of policy finance.

The qualified conclusion from our restricted analysis is that policy finance in Vietnam has yet to satisfactorily perform the role intended of it. The following steps seem necessary to improve upon and expand that role:

Review of government control and intervention, in order to increase the DAF's autonomy.

Encouragement of adequate institutional development to cover the problem of information asymmetry, as well as establishment of a legal environment to better protect creditor rights.

Improvement of proficiency within the DAF with respect to institutional know-how and operational skills.

On the borrower's side further reform of the SOEs and improvements in their ability to accumulate capital.

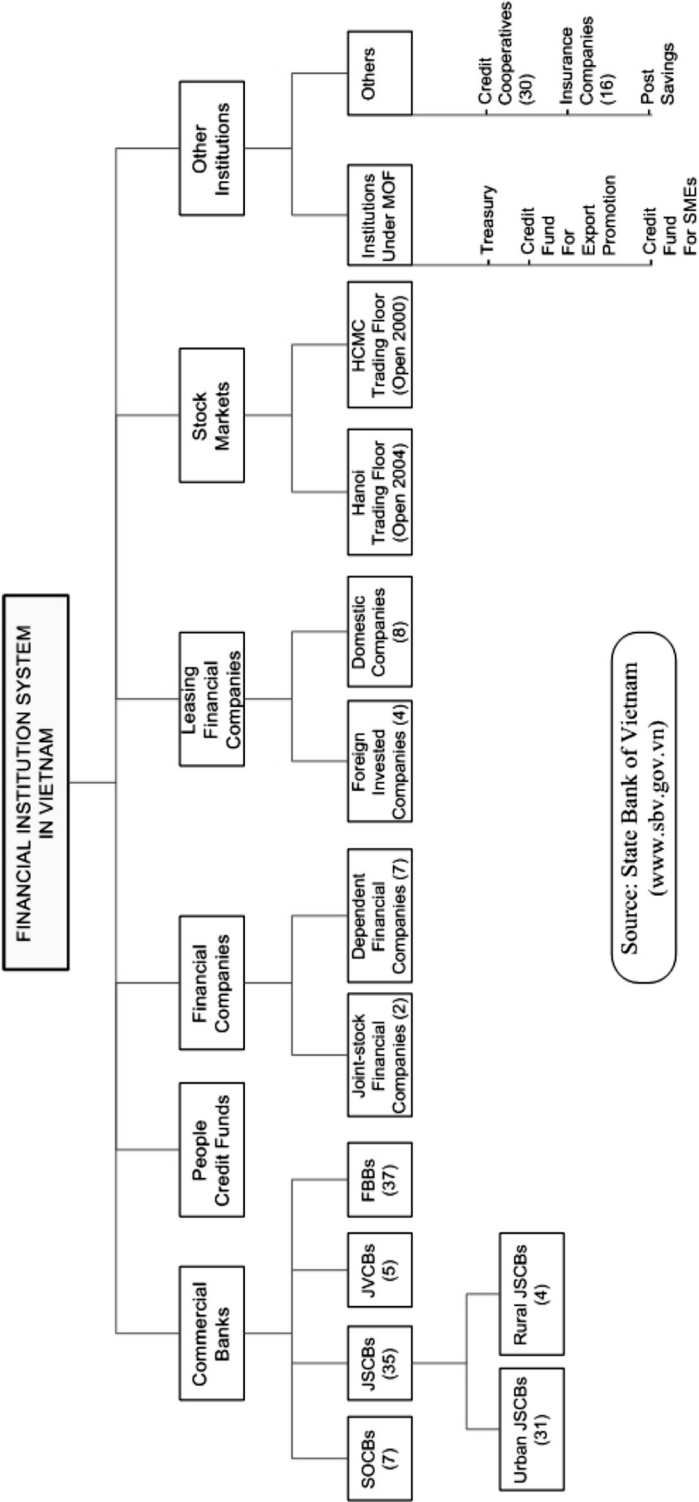
APPENDIX 1. – **Liberalisation of Interest Rates**

1993	Regulations on lending rates by industry and ownership, which formed the interest rate structure by prioritized industry sector, removed
1996	Change implemented in the previous system that set the ceiling rate for lending and the floor rate for deposits, and introduction of a system under which interest rates are set within the loan-deposit rate spreads (0.35% a month) based on the ceiling lending rate determined by the State Bank of Vietnam
1998	Regulations on interest rate spreads abolished
2000	Change in the interest rate system, and introduction of a system under which the lending rate for dollar-based loans is fixed at SIBOR and lending rates for VND-based loans are set by financial institutions within a prescribed range of fluctuations based on base rates determined by the SBV (Decision No.241~244)
2001	Liberalization of foreign currency lending rates by Vietnamese domestic banks and offshore banks (Decision No.718/2001/QD-NHNN; Decision No.980/2001/QD-NHNN)
2002	Banks given discretion to move up the repayment date for outstanding loans as a whole and deem all of them as in arrears when borrowers fail to make due payments, and to reset interest rates on delinquent loans (Decision No.162 7/2001/QD-NHNN, February 2002)
	Liberalization of interest rates on VND-based loans

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CHART 1.



FACTORS INFLUENCING THE PROVISION OF FINANCIAL INFORMATION OF SMALL AND MEDIUM COMPANIES IN TRANSITION ECONOMIES: EVIDENCE FROM VIETNAM

ABSTRACT

Small and medium companies (SMCs) in transition economies play a crucial role in development. However, their financial reporting practices have largely been ignored. This study's contribution is in providing qualitative insights regarding views on the provision of SMC financial information in Vietnam's transition economy. This has been collected via semi-structured interviews of preparers and users of this data.

The study concludes that there is inadequate provision of financial information by SMCs, both quantity and quality. A lack of awareness by company directors of the functions of accounting, the high frequency of regulatory change, and a lack of skilled accounting staff were seen as having a negative impact on the provision of financial information. Preparers also found it difficult to recognise potential benefits arising from enhanced external financial reporting. Audits were seen as infeasible in the SMCs, not because of the cost of the audit, but because of their perceived low quality. The results call for the revision of the traditional reporting frameworks in the context of the less developed transition economies' reporting environments. SMCs need to be more proactive in meeting the financial reporting needs of the economic users of their information, rather than perceiving reporting as mere government compliance.

JEL Classification Numbers: D0, F1, H0

Key Words: financial reporting, small and medium sized companies, transitional economies, Vietnam

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1. INTRODUCTION

Small- and medium- sized companies (SMCs) play a critical role in any economy in terms of wealth creation and employment. Financial reporting is essential for these companies to access financial sources and to find partners for their growth and development. Unfortunately, little has been known about how SMCs provide financial information to their users. A review of the relevant literature has showed that much accounting research focuses primarily on large listed companies rather than smaller ones (John and Healeas, 2000). In addition, there is a lack of research in the context of less developed economies (Hopper and Hoque, 2004; Mirshekary and Saudagaran, 2005). This study makes a contribution to this under-researched area through focusing

on the identification of the factors affecting the provision of SMC financial information in the transitional economy of Vietnam.

This study adopts a qualitative methods approach. A total of nineteen semi-structured interviews were conducted with SMCs and the external users of their financial information. Conceptual analysis is employed to identify and organize the themes arising from the data and relational analysis is also employed to assess the interrelationships amongst the conceptual categories. From the perceptions of both preparers and users of financial information, a model of the patterns of the factors affecting the provision of financial information is developed. Conclusions and implications of the study are then drawn based on this model.

The remainder of this paper is organized as follows. Firstly, a theoretical framework is introduced to provide a basis for the research. Secondly, the economic and financial environment in Vietnam is discussed to provide insights into the contextual features of the study. Thirdly, the research methodology and data collection are outlined. Finally, conclusions are drawn and implications for future research are stated.

2. THEORETICAL FRAMEWORK

This study adopts the conceptual frameworks underlying three traditional reporting models¹ as the departure point for the research. According to these models, the conceptual framework of any reporting model is based on 'decision-usefulness' and 'cost-effectiveness' principles that a company "should produce the information that is useful for users in making economic decisions" (FASB, 1978: p.5). This statement has a significant influence on both the academic literature and the professional community (ICAEW, 2003).

The application of the traditional models' framework to small company financial reporting is questionable. The basic objectives seem not to be appropriate in the case of SMCs since most smaller companies are managed by their owners and there is an absence of agency relationship between the management and the shareholders (Bridge, O'Neill, and Cromie, 2003). SMCs have often complained of their reporting burden due to the application of a reporting model that is primarily created for large and listed companies. This, together with the daily increase in the number of the small companies led to calls for a differential reporting regime, known as the "big GAAP/little GAAP debate" (Harvey and Walton, 1996).

The debate on differential reporting focuses on the distinctive organizational structure and ownership of smaller companies and the environment in which they operate. Unlike large firms, smaller companies have somewhat different

¹ The US Financial Accounting Standards Board (FASB, 1978), the International Accounting Standards Board (IASB, 1989) and the UK Accounting Standards Board (ASB, 1999).

objectives, motivations and actions (Bridge *et al.*, 2003) and the separation of ownership and control is not common (Holmes and Nicholls, 1990). As a consequence, there is little delegation of control and the scope of users of small company financial reports is perceived as more limited (Dang, Marriott, and Marriott, 2006). The agency costs in smaller firms are minimised and the enterprises experience different problems compared to larger ones (Holmes and Zimmer, 1994). Therefore, the traditional views on agency theory may not be considered relevant to small company financial reporting.

Financial reporting practices in transitional economies have some unique features compared to mature market economies (Bailey, 1995; Scheela and Nguyen, 2004). It is recognized that financial reporting practices in transitional economies have evolved as a response to many socio-economic domestic factors, including the level of economic development, the legal and regulatory system, educational and professional infrastructure, colonial heritage and history and culture (Saudagaran and Diga, 2003; Kosmala-MacLulich, Sikorska, and Gierusz, 2004). According to Bailey (1995), the institutional arrangements and legal and regulatory frameworks in transitional economies are 'either absent or, if in the course of creation, functioning ineffectively' (p.603). As a result, government agencies such as tax authorities dominate the financial reporting requirements imposed on companies. The participation of the private sector in financial reporting regulations is therefore quite limited (Saudagaran and Diga, 2000). Accounting activities, especially in smaller companies, are more concerned with legal compliance than economic relevance. While financial reporting is a highly regulated area, the legal and regulatory framework in transitional economies is limited in scope and is expressed in loose and general terms (Abu-Nassar and Rutherford, 2001). Therefore, smaller companies are also often notorious for poor or even no accounting records (UNCTAD, 2000) which make it difficult for information users to assess risks and future returns and therefore create funding problems (Lloyd-Reason, Merinova, and Nicolescu, 2000), competitive disadvantages and higher failure rate (UNCTAD, 2000). Financial reporting by SMCs is now on the agenda of the IASB and international accounting professions. However, one difficulty faced by financial regulators and standard setters lies in overcoming preparers/users imbalance and obtaining evidence on the likely impact of regulatory reform (Beattie, Goodacre, and Thomson, 2006).

3. THE FINANCIAL REPORTING ENVIRONMENT IN VIETNAM

Vietnam has been known to embrace a successful economic reform to a market economy in recent years. The reform is aimed at restructuring Vietnam's legal, regulatory, administrative, investment and foreign trade apparatus and policies to transform its centrally-planned economic system into a market economy with "socialist characteristics" (Bryant, 1998). In the tran-

sition process, the private sector is supported as a vital component of the economy (Webster, 1999). SMCs, defined as independent companies with less than 300 employees or registered working capital of less than 10 billion VND (equivalent to £350,000) (VietnamGov, 2001), are the key component to boost economic development (Baughn, Lim, Le, Neupert, and Wood, 2004) and to protect Vietnam economic independence (UNDP, 2002). Compared to neighbouring countries like China or other ASEAN countries, SMCs in Vietnam are relatively few in number (Warner, 2000; Scheela and Nguyen, 2004). However, they have to face similar significant challenges such as limited business skills and an inadequate and underdeveloped institutional infrastructure (Webster, 1999; Scheela and Nguyen, 2004). More importantly, SMCs in these economies lack a transparent reporting regime, which is essential to help them access more financial resources for their growth and development (ADB, 2001).

Financial reporting practices in Vietnam have experienced radical changes as a response to the requirements of economic growth and global harmonization. The changes in the accounting and financial system is influenced by accounting models of countries having strong military, social or trade links with Vietnam (ADB, 2001). From 1969 to 1989, Vietnam's accounting system adopted the socialist accounting models of China and the former Soviet Union. In the 1990s, the accounting system was influenced by the US and then Western models. From 1995 to 1998, the European Union Project (EURO-TAPVIET) had a great impact on the revolution of the accounting system. The Enterprise Accounting System (MoF, 1995) and the Accounting System for Small and Medium Sized Enterprises (MoF, 1996) were introduced as the first steps to recognize the private sector as a subject of economic transactions. However, unlike US or UK General Accepted Accounting Principles (GAAP), both accounting systems resemble a bookkeeping manual rather than a collection of concepts and principles and are driven by taxation and state enterprises rather than free market forces (Yang and Nguyen, 2003). The systems are identical to the Chinese accounting systems (see, Lin and Feng, 2000) and very similar to those of Eastern European countries (ie., Rolfe and Doupnik, 1995). Recently, the Law on Accounting and the National Accounting Standards (MoF, 2002), which comply mostly with International Accounting Standards (IAS/IFRSs), have recently been issued and are intended to be applied in all enterprises, stimulating an increase in the volume and complexity of accounting regulations imposed on SMCs.

4. METHODOLOGY

A qualitative approach is adopted in this study. The qualitative research design is in the form of inductive naturalistic inquiry and is part of the conceptualizing process, namely grounded theory (Glaser and Strauss, 1967; Strauss and Corbin, 1998) or conceptual framing (Llewelyn, 2003). Accord-

ing to Cassell and Symon (1994), qualitative research is used in the context of the research matter in terms of how and why it occurs and when the research phenomena is emergent rather than prefigured. This study presents all these features. Furthermore, unreliable economic data and the problems in administering surveys in transitional economies (Hopper and Hoque, 2004) also make quantitative methods impractical at this stage of any research investigation.

Two question guidelines were designed to fit the context of the interviews. Semi-structured questions were used in one-to-one personal interviews to provide rich data set for subsequent analysis (Horton, Macve, and Struyven, 2004). A list of questions was used to guide the participants through major relevant themes identified in the literature. Table 1 shows these themes.

TABLE 1. – Major themes for the provision and uses of the financial information of SMCs

The provision of information by SMCs	Users' needs and uses of financial information
<ul style="list-style-type: none"> • Organizational and ownership structure • Business prospects • Recipients of financial reports • Purposes of the provision of information • Provision of information other than information in financial statements • Information that should not be provided in financial statements • Perceptions about information quality • Cost-benefit considerations • Perceptions about the role of audit and accounting standards • Uses of information for management purposes • Uses of financial information of other businesses • Recognition and measurement in financial reports • Perceptions about the role of auditors' reports and accounting standards 	<ul style="list-style-type: none"> • Perceptions about the users of information • General needs for information • Purpose of using information • Experience in dealing with financial statements • Time spent reading financial statements • Perceptions of relevance of the sections of financial reports • Access to information • Frequency of usage • Level of understanding of information • Perceptions about information quality (reliable, relevant, timely, comparable) • Other sources of information • Cost-benefit considerations • Perceptions about the role of auditors' reports and accounting standards

Two samples of respondents were then collected. The first sample was of the directors and accountants of SMCs ($n = 59$) and the other was of the external users of financial information ($n = 36$). The sample of external users of information was based on a list of commercial banks, local tax departments and

statistics offices from the Yellow Pages 2004 published by the Vietnam Communications Corporation. The contacts resulted in nine agreements to take part in the research and finally eight interviews were completed.

The sampling process of SMCs was based on the list of 366 companies in Hanoi Yellow Pages 2004. This source seemed to be the optimal choice since each company in the list had a complete profile including name, address, telephone number with some details of major managers and accountants. Another advantage of this list was that the data was considered as the most up-to-date source. One drawback of the list was that the profile did not include information about the size of the business. However, since over 95 percent of non-state enterprises are small and medium (GSO, 2004), this list was considered to be a suitable sampling frame.

A random sample of companies was then selected by choosing every fifth enterprise in the list of SMCs. The process generated a smaller sample of 74 companies which was regarded as feasible for interviewing. All companies were then contacted via telephone for interview agreements. Most of the initial contacts produced no results because of a variety of reasons: the companies had exited from the market; the interviewees were too busy or not interested in the study. Some interviewees offered appointments, but then changed their mind. Finally, eleven interviews with the directors and accountants of SMCs were conducted. The profiles of respondents are provided in Appendix A. Table 2 gives an analysis of the respondents.

TABLE 2. – Respondent rates of the sample of the information users and SMCs

Users	Code*	No. contacted	No. responded	% responded
I. SMCs:				
Chief accountants	CA	15	4	26.66
Owner/directors	OM	59	7	11.86
II. Users of information				
Bank credit managers	BL	8	2	25.00
Financial advisors	FA	3	1	33.33
Tax officers	TA	7	2	28.57
Statistics officers	SO	4	3	75.00
Total		96	19	19.79

* These codes are used in sections 5 and 6 to classify the types of respondent

It was clear that the response rates of the interviews were low (15% in the sample of SMCs and 36% in the sample of users). However, this was expected if compared to similar qualitative studies in developed countries (ie, Templeman and Wootton, 1987 (12%); Fillis, Johansson and Wagner, 2004 (15%)). The reasons for the low response rate was that the respondents said that it was the first time they had participated in research of this type and some

of them also requested significant details about the interviewer before they agreed to be interviewed. All interviews were carried out in two time periods, from January-February and from May-June 2005.

TABLE 3. – The interrelationships between factors affecting the provision of financial information of SMCs

Outcomes	Preparers' assessment		Users' assessment		Related categories
	Relation	Freq.*	Relation	Freq.**	
The provision of information	++	11	++	8	Uniform format of financial statements
	+	5	++	5	Alternative forms of reporting
	+	4	NA	NA	Cost-benefit considerations
	+	3	–	1	The current role of audit
A uniform format of financial statements	++	11	NA	NA	Accounting functions
	+	3	NA	NA	Cost-benefit considerations
Alternative forms of reporting	+	2	NA	NA	Desire for external finance
Accounting functions	–	9	–	2	Accounting staff issues
	–	4	--	5	The role of the directors***
	++	11	++	8	Statutory pressure
	--	6	NA	NA	Regulatory changes
	+	2	NA	NA	Desire for external finance
The role of the directors	–	4	–	3	Accounting expertise
Regulatory changes	++	6	NA	NA	Legal and financial regulations
Accounting staff issues	--	9	NA	NA	Accounting expertise
Statutory pressure	++	11	++	8	Legal and financial regulations
Quality of information	NA	NA	--	7	The role of the directors
	NA	NA	+	4	The role of accountants

* Total number of SMCs: 11

** Total number of external users: 8

*** Total number of respondents exclusive of the directors (preparers:11–7=4; external users: 8)

++ strong positive relationship + weak positive relationship

-- strong negative relationship – weak negative relationship

Content analysis was employed to analyze the qualitative data. Two types of content analysis, namely conceptual analysis and relational analysis were used. The analysis used the process of conceptual framing conducted by a three-phase approach: data reduction, data display and conclusion drawing and verification (Miles and Huberman, 1994). All interview transcripts were coded with the assistance of qualitative software (Nvivo). The coding process was not only for summarizing segments of data, but also a way of grouping those summaries into a smaller number of sets, themes or constructs. The coding process helped to construct coding models, also known as coding frames (Berg, 2004). This feature facilitates the use of relational analysis to identify the interrelationships amongst the themes arising from the interviews. Table 3 shows these interrelationships and the analysis that follows provides a deeper insight into the views of the respondents.

5. THE VIEWS OF THE PREPARERS OF FINANCIAL INFORMATION

5.1. THE SCOPE OF THE PROVISION OF FINANCIAL INFORMATION BY SMCs

Statutory pressure was seen as having a profound impact on the scope of the provision of financial information. All eleven companies said that tax authorities and other government agencies were the main users of their financial statements. Four companies also stated that they also sent their financial statements to the banks. The information provided to users included the balance sheet, income statement and the notes to the financial statements. Although cash flow statements are also required in the legal documents, only two out of the eleven companies interviewed said that they provided the cash flow statement to users. Those not providing cash flow statements to external users also did not prepare the cash flow reports for internal purposes. The reason for not providing the cash flow information was that they had no specific requests from users or that they did not see any benefits for the external users in using cash flow information. Four companies said that they did not know how to prepare cash flow reports.

“Our reporting system is simple and we continue to learn... we do not prepare the cash flow reports... preparing a cash flow report is too difficult for me... Anyway, they [the government agencies] do not require this report.”
(CA (4))

“If I need to know the information about my cash [flows] I could ask [the accountant] for information, there is no need to make a [cash flow] report.”
(OM (5))

The changes in accounting regulations were perceived as having a negative impact on the provision of information. It is interesting to note that while the complexity of financial regulations keeps increasing with a view to facilitate better financial reporting practices, this was perceived as having a nega-

tive impact on the reporting practice of the companies interviewed. All the accountants in the SMCs regarded the high frequency of regulatory changes as costly and made it difficult to adjust their accounting systems.

"I think every enterprise has concern about the [accounting] regulations. For example, the accounting and tax policies keep changing every month. We cannot keep up with these changes... when the regulations on accounting methods changes, we have to call technicians to adjust our [computer] systems and that requires a lot of time and money." (CA (1))

As the complexity of accounting regulation increases, a lack of skilled accountants was seen as one of the main obstacles to the financial reporting in SMCs. Nine out of the eleven companies said that they needed more experienced and skilled accountants. The accountants with merely bookkeeping skills were of little value to their management.

"My accountants sometimes do not understand what I need or what I want them to do." (OM (1))

"They do not meet our requirements on financial budget and analysis and investment... I need more advice on our liabilities and on when and how much I should pay." (OM (6))

All companies said that they would like to have more choices on recruiting suitable accountants. However, it was difficult for them to find a better choice due to the lack of "accounting labour markets" and underdeveloped accounting profession (see also, Jaruga, 1979; Adams and McMillan, 1997). The evidence tended to support the findings of Han and Baumgarte (2000) that small businesses often find it difficult to find suitable skilled employees to grow and develop the company.

It is interesting to note that information and communication technology (ICT) was not seen as a major obstacle to the preparation and provision of financial information in the SMCs interviewed. Seven out of the eleven companies contended that they used computers for accounting purposes. The others said that they intended to use computers in the near future.

5.2. THE DIRECTORS' FINANCIAL MANAGEMENT SKILLS

The financial skills of the directors were seen as having a negative influence on financial reporting by SMCs. Eight out of the eleven companies reported inadequate management and financial skills among the directors. The directors in these companies said that they were not familiar with analysing skills to interpret accounting information themselves. As a result, the directors said that financial information was also seen as of little benefit to them.

"I am not sure that I understand it properly because some reports are quite complicated and sometimes I do not have time to read them thoroughly... they [the reports] are not helpful". (OM (1))

The low financial skills of the directors tended to affect their capabilities to manage their businesses and to offer more valuable information to the external interested parties. The directors said they had to rely heavily on their own perceptions to make economic decisions.

“Actually I do not understand the accounting information very well, so I have to keep everything in my head in order to make my plan and to control my business. It depends on my feelings in specific circumstances.” (OM (1))

The close relationship between the managers/directors and their business was seen as a factor affecting the directors’ awareness of the accounting function. The director said that their frequent presence at business was more valuable than accounting information.

“I think that I can handle everything without the assistance of the accountant... because I am here all of the time.” (OM (4))

5.3. THE DESIRE FOR EXTERNAL FINANCE

External financial resources were always seen as important to the growth of all the SMCs interviewed. However, it was also reported that financial information was not helpful for SMCs to access external financial sources. Amongst the companies having external sources of finance, one obtained loans solely from private lenders, two obtained loans solely from banks and four from both banks and private lenders. The directors of the companies having bank finance said that there was a conflict between the banks and their companies in the evaluation of the financial indicators in the financial statements.

“There are some disagreements between our company and the banks on some criteria in the financial statements... such as depreciation...or interest charges.” (OM (3))

Security was always seen as an alternative for communication of information. The directors said that collateral secured the success of their loan applications even if their financial statements were not available or not complete. However, as Deakins and Hussain (1994) suggest, collateral also causes problems for small companies. The following example illustrates the issue.

“The banks usually try to avoid risks by requiring collateral, but we do not have appropriate properties...I was assigned to use this house a long time ago but I have not received documents to prove my ownership. Therefore, I cannot use it as collateral for our business loans.” (OM (4))

Those having finance from private lenders said that the reason for approaching this source of finance was that the lending procedures were much less complicated and in some cases, only personal commitment was needed. This evidence tends to support the findings of previous studies (for example, Hoang, 1993; Han and Baumgarte, 2000) that small businesses have negative perceptions about the complex procedures incidental to their loan applications.

Amongst the companies that have external sources of finance, there were positive relationships between the desire for external finance and the form and amount of the financial information provided. In these cases, alternative forms of financial reporting such as direct contacts and the use of interim/special reports were also seen as having a positive impact on the provision of information. Those companies sending their financial statements to their banks reported that alternative methods of communication were a key factor in improving the relationship between the banks and the companies. However, the relationships were considered as weak because a considerable number of the companies (4 out of the 11) did not have external finance. In addition, both directors and chief accountants said that the use of these methods relied heavily on their own experiences in dealing with finance providers. Bribery was also mentioned as a way of accessing finance.

“In order to access financial sources, you should have [illegal] personal relationships with credit officers... the legal regulations on corrupt business activities are not restrictive enough to prevent it. Therefore, these types of relationships are still common.” (OM (4))

5.4. COST-BENEFIT CONSIDERATIONS

A relationship was found between cost-benefit considerations and the provision of information. In all eleven SMCs, the directors and chief accountants recognized the costs incurred by their accounting systems. However, they also said that it was difficult for them to recognize the benefits from the provision of information. The impact of cost-benefit considerations on the preparation and provision of financial information therefore was seen as limited.

“I do not know. I hope that the benefits should exceed the costs.” (CA (3))

“There are some items of expenses incurred in the preparation of financial statements such as the wages of accountants, software license and maintenance, fixed asset depreciation and some petty cash expenses, but I do not know how to compare [the costs] with the benefits.”(OM (2))

“I think that the only benefit I have from the provision [of financial information] is to fulfil the requirements of the tax laws... However, it is no benefit for me because they [the tax authorities] use the reports to get my money.” (OM (7))

5.5. THE PERCEPTIONS OF THE ROLE OF AUDIT AND ACCOUNTING STANDARDS

There was also a positive relationship between the choice of using audit and the provision of financial information. Generally, all SMCs recognised the positive role of the auditor's reports to improve the quality of financial infor-

mation. However, only two out of eleven SMCs use audit services. Therefore, the relationship was perceived as weak. Furthermore, the concern regarding the quality of audit was also found.

“The [the auditor’s] recommendations are general and not very helpful. They do not give us specific recommendations on financial and management issues. Their function is just to verify the accounting process and data.”(OM (3))

In contrast to the findings in Keasey *et al.*, (1988), the study found that the demand for and the use of audit was the perceptions of the service quality rather than the cost rationale. The evidence tends to support the findings of Collis *et al.*, (2004) that the perceptions of the directors about the value of the audit were significant in the choice of using audit services. All of the SMCs also said that they were not familiar with national accounting standards and had a little understanding about them.

6. THE VIEWS OF THE EXTERNAL USERS OF INFORMATION

6.1. SMCs’ RESPONSES TO THE DEMAND OF FINANCIAL INFORMATION

There was a general consensus amongst the views of the external users about the inadequacy of the financial information provided by SMCs. All eight users said that the balance sheets and income statements accompanied by the notes to financial statements were most frequently used. However while the users considered that the information of cash flows and business plans was important, this information is not normally available.

All users mentioned the statutory submissions specified by law as the main method of access to information. Consistent with the views of the preparers, the users also addressed alternative methods of information communication: issuing an alternative format of financial reports and conducting direct contacts with the companies.

“We have our own format of interim reports...consisting of some basic criteria such as the revenues, account receivables/payables, inventory, the owner’s equity and profit margin... Another way to reduce risk in lending is that we have frequent direct contact with them [clients]”. (BL (2))

“I send a format to the companies to collect responses from them...I also pay visits to companies to check their accounting books and reports.” (SO (3))

6.2. THE PERCEPTIONS ABOUT THE QUALITY OF FINANCIAL INFORMATION

The main concern of the users was that the information provided by SMCs was of low quality. Financial information was seen as unreliable and out of date. Seven out of the eight users said that the financial background of the owner/directors had a positive impact on the quality of information. How-

ever, the financial awareness of the directors was seen as variable, largely depending on their business experience and education. The current low capability of accountants and the influence the directors have over what is reported was perceived as having negative effects on the quality of information.

"I think there are two reasons. Firstly, the capability of accountants [*in preparing the reports*] in these companies may be low. They cannot prepare a full set of financial statements properly, so they just submit what they can. Secondly, even if the accountant can prepare the financial statements, they have to follow the instructions of the owner/directors of the company...I think that at least about 60-70 percent make a profit, but they will report a loss..." (SO (1))

"Some companies choose to use tax officers and retired government officers to prepare the reports for them. On the one hand they would like to have good relationship with the tax officers. On the other hand they would like to avoid problems arising from reporting accounting data...Therefore, their accounting books and ledgers are not clear and systematic" (FA)

The income statements were seen of little value with the profit margin perceived to be the most unreliable measure. Except for the tax authorities, all other users had to request more frequent reports.

"Now it is very common that each company maintains two parallel recording systems, one is used to submit to government agencies and the other...reporting the real profit figures... for management uses. (BL (2))

"The reported revenue is only 30 to 40 percent of the real revenue...and the financial statements do not arrive for three months... (SO (2))

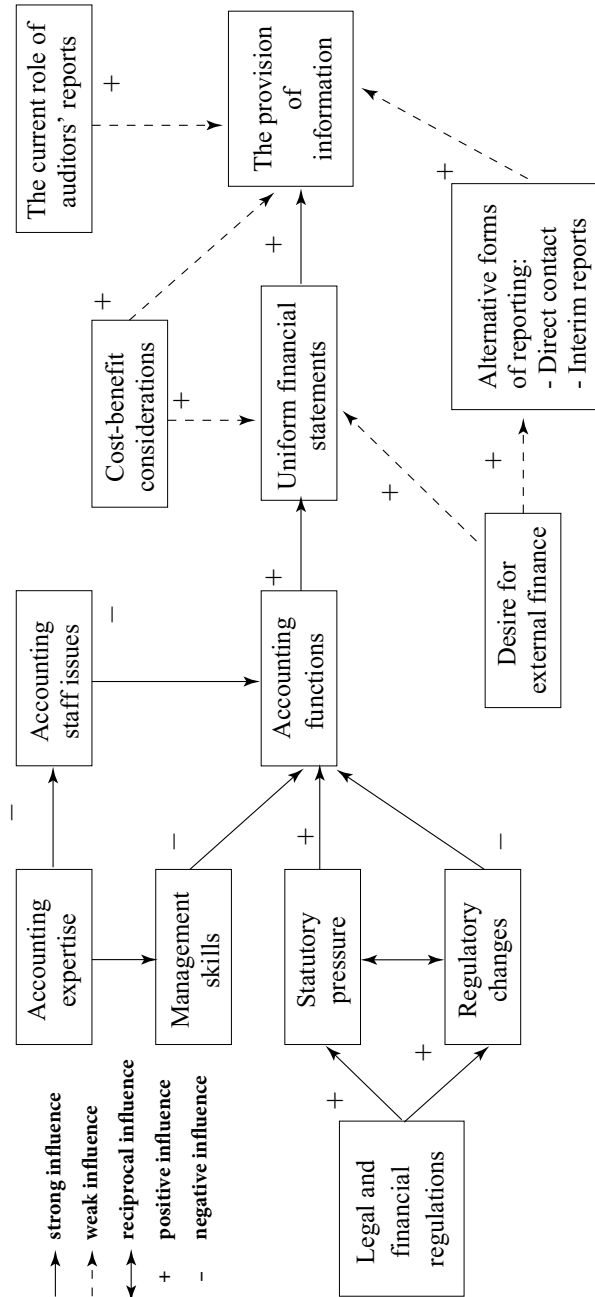
Timeliness was the main concern to improve the quality of information. The most prominent cause was that the time allowed for submission was too long and the approval process performed by the tax authority was too slow. These made the information out of date and less useful to users.

6.3. THE PERCEPTIONS OF ROLE OF THE AUDIT REPORT

Most of the users (7 out of 8) said that they did not receive an audit report on the accounts of SMCs. This tended to support the views of the preparers that the audit was seen as not appropriate to SMCs. When the users were asked about the alternative role of accountants in providing a statutory audit, most of them (7 out of 8) said that this was infeasible since it was not a legal requirement. However, the accountants were seen as having the potential to add value to the financial information.

From the views of the preparers and users of financial information, a model of the patterns of the factors affecting the provision of financial information is developed to facilitate the conclusion drawing and verification. Recognizing that network displaying is effective in showing the interrelationships

FIGURE 1. – Model of the patterns of the factors affecting the provision of information



amongst concepts (Miles and Huberman, 1994), this approach was chosen to depict the model. The model construction is a process of displaying and merging the conceptual categories and the interrelationships among them in a single causal network. Figure 1 depicts the model.

7. CONCLUSION

This paper reports the findings of an exploratory study analyzing the perceptions of the provision of the financial information of SMCs in the transition economy of Vietnam. The study is based on a qualitative interview survey conducted with both SMCs and users of their financial information.

Using the general conceptual frameworks of traditional reporting models, the study found the SMCs had a very limited number of users of their financial statements and there is an inadequacy in the provision of financial information of SMCs. Whilst cash flow information and business plans were important for the users, these were not included in the provision of SMCs. Statutory pressure was the main driver of the provision of the financial information. However, the high frequencies in changes of accounting regulations negatively affect the preparation and provision of information. Confirming the findings of Abu-Nassar and Rutherford (2001), the study found that the overall level of provision of financial information is poor. This calls for a revision of the traditional frameworks for financial reporting in the context of SMCs in transitional economies.

Extending the findings of previous studies, the study concludes that the directors' perceptions about financial reporting functions play a crucial role in increasing the quality and frequency of the provision of financial information. However, the lack of skilled accounting staff and the low awareness of financial skills among the directors had a negative effect on the quality of information provided. Whilst the main concern of the users was the poor quality of information, this was not recognized by the SMCs interviewed. The preparers also found it difficult to recognize the benefits they might receive from the provision of information. The audit was seen as a having limited role in the provision of information due to its low quality and the small size of the companies. It is interesting to note that apart from traditional information provision in financial statements, there exist informal channels of financial information exchange between the SMCs and their users of financial information. Some alternative forms of information communication between users and reporting companies have been identified, but their informality and infrequency make them an imperfect replacement.

Based on a model developed from the views on the factors affecting the provision of financial information of SMCs, the study reveals that there is an inadequacy of the provision of financial information in the under-regulated reporting environment of Vietnam. The company therefore has to be more proactive to meet the needs of the real users of their financial statements rather than merely meeting government compliance if they are to survive and grow in the rapid changing environment of transitional economies. The model depicts the current and future issues of financial reporting by SMCs therefore contributing to a more transparent and consistent reporting regime that provides opportunities for the development of SMCs in Vietnam.

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APPENDIX A. – Profiles of interview respondents

No.	Location	Position	Type of business/institutions	Code used
1	Dong Da Dist, Hanoi	Director	Electrical equipment Traders	OM (1)
2	Hoan Kiem Dist, Hanoi	Director	Electrical Office Equipment Traders	OM (2)
3	Dong Da Dist, Hanoi	Vice Director	Plastic Card Manufacturers	OM (3)
4	Ba Dinh Dist, Hanoi	Director	Coal Manufacturers	OM (4)
5	Hai Ba Trung Dist, Hanoi	Director	Speaker Case Manufacturers	OM (5)
6	Hoan Kiem Dist, Hanoi	Vice Director	Computer and Software Traders	OM (6)
7	Tay Ho Dist, Hanoi	Director	Electronic Catalogue Manufacturers	OM (7)
8	Dong Da Dist, Hanoi	Chief Accountant	Commercial Gifts Traders	CA (1)
9	Dong Da Dist, Hanoi	Chief Accountant	Textile Product Manufacturers	CA (2)
10	Dong Da Dist, Hanoi	Chief Accountant	Medical Equipment Traders	CA (3)
11	Hoang Mai Dist, Hanoi	Chief Accountant	Photography, Decoration and Graphics	CA (4)
12	Ba Dinh Dist, Hanoi	Finance Director	Consultant on Accounting and Finance	FA
13	Ba Dinh Dist, Hanoi	Credit manager	Banks	BL (1)
14	Hai Ba Trung Dist, Hanoi	Credit manager (2)	Banks	BL (2)
15	Dong Da Dist, Ha noi	Chief tax advisor	Taxation	TA (1)
16	Dong Da Dist, Ha noi	Tax officer	Taxation	TA (2)
17	Hoan Kiem Dist, Ha noi	Vice Director	Statistics	SO (1)
18	Hoan Kiem Dist, Hanoi	Chief advisor	Statistics	SO (2)
19	Cau Giay Dist, Ha noi	Statistics officer	Statistics	SO (3)

THE IMPACT OF ENTERPRISE RESOURCE PLANNING SYSTEMS ON MANAGEMENT ACCOUNTING: AN AUSTRALIAN STUDY

ABSTRACT

Information technology is significantly changing the operating practices of an increasing number of companies globally. These developments have important implications for the accounting profession and in particular accounting practices in the twenty-first century. This study examines the development of enterprise resource planning (ERP) systems as a means of illustrating how changes in information technology allow all systems in a company to be linked to manage operations holistically.

The study investigates the change in accounting systems using a sample of Australian companies with emphasis on the adoption of ERP systems including the potential impact of ERP on capital budgeting processes. The results show that ERP systems are changing management accounting practices, although at this stage, the impact on capital budgeting techniques appears to be limited. The findings contribute to the emerging body of literature on the development of ERP systems and its impact on management accounting teaching and research.

JEL Classification Numbers: M4, G3

Key Words: management accounting, capital budgeting, enterprise resource planning systems, information technology

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1. INTRODUCTION

During the past decade an increasing number of companies have been impacted by information technology in terms of computerised transaction processing and electronic telecommunications such as that done with the Internet, intranet, and extranet. For competitive reasons companies have had to change from manual, and then mainframe systems, to what has been called enterprise resource planning (ERP) systems. An ERP system has a common database or data warehouse that links together all systems in all parts of a company including, for example, capital budgeting with financial, control, manufacturing, sales, fixed assets, inventory, human resources modules, etc. An ERP system, by linking all systems through a data warehouse, allows a company to manage its operations holistically.

A second impact of ERP systems has been a general shift to manage at the activity level rather than at the more abstract level of financial transactions. This means that management accounting, with its focus on activities, can be most effective when it is used with ERP systems to incorporate the activity level for costing and performance measurement. To be effective an ERP system will contain an extensive chart of accounts or codes for activities such as accurate recording and tracking of activities, revenues and costs. The coding incorporates stable entities of a business, such as divisions, plants, stores, and warehouses. At a detailed level there are codes for functions such as finance, production, sales, marketing, and materials management. There are also the traditional financial account codes such as assets, liabilities, revenues, and expenses, and the central ERP feature of coding processes, activities, and sub-activities. There must be consistent coding among all parts of a company in order for them to relate to one another.

As the ERP system incorporates activities in terms of quantities of resources, including labour, a record of resource use is maintained. Therefore, performance can be measured in physical terms and compared to standards, which allows for the calculation of variances. This performance measurement at the activity level serves as a feedback system on efficiency and effectiveness. The confusion from abstract monetary measures is erased, and what is actually happening with the conversion of resources into goods and services can be seen. ERP systems have the potential to change management accounting systems with more detailed, more integrated, and faster produced information.

To date the research on the impact of ERP systems on management accounting can best be described as preliminary. It has involved case studies of one or two companies at a time and some field studies. The findings from these studies have been largely anecdotal. Also, some have been deductive in that arguments based on ERP attributes have been made on how management accounting should be affected. For instance, in a field study, Cook, *et al.* (2000) described activity-based capital budgeting at a division of a US telecommunications company. The findings from Cook *et al.*'s fieldwork suggests that ERP systems can increase the effectiveness of capital budgeting by anchoring financial numbers to activities, rather than stopping at monetary measures with pre-ERP practices.

The goal of this paper is to investigate the change in accounting systems using a sample of Australian companies with emphasis on the adoption of ERP systems including the potential impact of ERP on capital budgeting processes. Prior research in the Australian environment has indicated that the economic/institutional setting is significantly different from the US and European environments as Australian companies are smaller, with fewer multinational subsidiaries and more homogeneous management background in terms of culture and educational background (Matolcsy, *et al.*, 2005). Given these differences in the Australian environment Matolcsy, *et al.* claim that the

benefits of ERP systems are likely to be more pronounced and measurable, at least in the short run, in Australia.

The significance of the study lays in its contribution to the emerging body of literature on the development of ERP systems, and in its potential to provide a useful contrast to and/or confirmation of the existing limited, and mainly US-based, research. Furthermore this study contributes to the body of knowledge of the impact of ERP on management accounting teaching and research using a broadly-based sample of corporations in an Australian setting.

In ascertaining the impact of information technology on management accounting, this paper has the following additional sections. The second section contains a literature review of the impact of information technology on management accounting. With the literature review, the third section develops the research method and determines the sample used to ascertain the impact of ERP systems on management accounting practices of Australian companies. The fourth section contains the findings, while the fifth and sixth provide the discussion and conclusion, respectively. Recommendations for future research are included in the conclusion.

2. LITERATURE REVIEW

2.1. THE INTEGRATION OF ERP SYSTEMS INTO MANAGEMENT ACCOUNTING

Expectations for ERP systems to change management accounting were introduced by Kaplan and Cooper (1998), especially in the fourth of their four-stage model for cost and performance measurement systems. When a company had first stage systems, those systems were basically inadequate for all purposes, even for financial reporting. When they make improvements, the first stage companies tend to add financial systems to meet regulatory requirements. As a result, they evolve into second stage systems where financial reporting systems dominate; these companies are financial reporting driven. The companies with third stage systems have customized, managerially relevant cost management, financial reporting, and performance measurement systems. However, these systems are standalone. ERP systems only occur with fourth stage systems where ERP systems integrate cost management, financial reporting and performance measurement (Kaplan and Cooper, 1998).

An ERP system has a common data structure that permits data to be entered and accessed from anywhere in the world (Kaplan and Cooper, 1998). An activity-based costing system is an integral part of an ERP system, and thus managers have information about present and future activities at operational levels when making decisions (Kaplan and Cooper, 1998). With activity-based information, monetary distortions can be reduced. Feedback with activity information improves learning. Thus, in managing at the activity level, costing, budgeting, performance measurement, bonuses, resource spending, forecasting, budgeting, production, etc. can be improved in terms of efficien-

cy and effectiveness. An ERP system will allow the company to obtain cost and performance information more frequently, even daily, rather than waiting a month (Kaplan and Cooper, 1998).

Kaplan and Cooper (1998) state that the integration with ERP systems allow all managerial processes, including budgeting, what-if analysis, and transfer pricing to be also based on activities rather than only dollars. Activity-based budgeting gives companies the opportunity to authorize and control resources based on accurate demand information. Accuracy increases because activity-based budgeting is based on facts, and less upon power, influence, and negotiating ability. Furthermore, the activity-level focus of budgeting leads to more accuracy in forecasting the demands for all direct and especially indirect activities.

At the same time as Kaplan and Cooper's (1998) important book, Davenport (1998: 122) wrote "the business world's embrace of enterprise systems may in fact be the most important development in the corporate use of information technology in the 1990s." Davenport (1998: 127) expected companies to change with the implementation of ERP systems:

In addition to having important strategic implications, enterprise systems also have a direct, and often paradoxical, impact on a company's organization and culture. On the one hand, by providing universal, real-time access to operating and financial data, the systems allow companies to streamline their management structures, creating flatter, more flexible, and more democratic organizations. On the other hand, they also involve the centralization of control over information and the standardization of processes, which are qualities more consistent with hierarchical, command-and-control organizations with uniform cultures.

The paradox with ERP systems – streamlined, flatter, and more flexible and democratic (i.e., more control at the frontline) and centralization of control over information and the standardization of processes (i.e., more control at the centre) – makes Davenport (1998) ask: How will ERP systems affect companies? Another equally relevant question would be: How will ERP systems affect management accounting?

Taken together, Kaplan and Cooper (1998) and Davenport (1998) suggest that ERP systems will change companies, but these researchers do not specify the nature of these changes. They certainly do not explicitly specify how ERP systems will impact on management accounting. Nevertheless, it is possible to infer that changes will occur to management accounting from the integration among cost management, financial reporting, performance measurement, and all other systems. Thus, it is not surprising that there has been some exploratory research prompted by Kaplan and Cooper (1998) and Davenport (1998) on the impact of ERP systems on management accounting.

2.2. THE PRACTICAL APPLICATION OF ERP SYSTEMS – CAPITAL BUDGETING

As previously outlined, a field study conducted by Cook, *et al.* (2000), described the operation of activity-based capital budgeting as a division of a US telecommunications company. In their study Cook, *et al.* found that the activity information was linked to the financial accounting system, thus behaving like an ERP system for the purpose of capital budgeting. This approach went beyond the traditional capital budgeting by linking the traditional incremental monetary revenues and costs with underlying activities. The authors concluded that by separately identifying the level of revenues and costs associated with process activities, the uncertainty with such activities and related revenues and costs can be closely examined. They added that this activity-level capital budgeting gives managers far more information and understanding than possible from the traditional financial simulation of aggregated income-statement approach. Their arguments were convincing but could not be verified.

Hope and Fraser (2001; 2003) disclosed that some companies have ceased traditional budgeting processes. Four reasons have been put forward by Hope and Fraser as to why existing budgeting processes are failing (2001: 7-8):

1. Few companies are satisfied with their budgeting processes.
2. Far too much time is spent on budgeting and too little time is spent on strategy.
3. Financial capital is now a small part of market value.
4. Budgeting is expensive and adds little value either to the company or its users.

They claimed that hierarchical companies have devolved to networks, where the planning capacity and control inherent in budgeting can be accomplished by other means (Hope and Fraser, 2003). ERP systems, which they label enterprise-wide information systems, are important for eliminating budgeting, particularly when accompanied by the balanced scorecard, shareholder value models such as EVA, activity-based costing and management, rolling forecasts, and benchmarking (Hope and Fraser, 2001).

Some of the companies identified by Hope and Fraser (2003) – for example, the Scandinavian bank, Svenska Handelsbanken – abandoned budgeting before ERP systems. This suggests that, for those companies, ERP systems would not have been essential for effectiveness without budgeting. Perhaps, ERP systems will allow contemporary companies, with an ERP system, to be effective without budgeting. The impact of ERP systems on budgeting remains an empirical question.

It was noted from the findings of Cook, *et al.* (2000) and Hope and Fraser (2001, 2003) that there was a lack of empirical studies on the impact of information technology on capital budgeting. Kaplan and Cooper also noted the “lack of studies examining the organizational and behavioural aspects of

these systems” (1998: 300). Their purpose was “to examine the effects of integrated, enterprise-wide information systems on management accounting and management accountants’ work.” As they concluded there was “no scientific evidence on the research topic” they decided to use an exploratory field study to provide “insights” for subsequent research. Sixteen persons were interviewed at ten large almost exclusively SAP R/3 adopters. They found no major direct or indirect impacts of ERP on management accounting systems (1998: 309). The changes that did occur did not lead to changes in the logic of management accounting systems.

2.3. ERP AND ITS IMPACT ON THE WORK OF MANAGEMENT ACCOUNTANTS

Although none of the recent studies on the impact of ERP systems have indicated changes to management accounting systems, there have been some studies that have indicated effects on the work of management accountants. For example, Burns and Baldvinsdottir (1999), Caglio (2003), Quattrone and Hopper (2001; 2005), Granlund and Malmi (2002), Baxendale and Jama (2003), Meall (2003), Scapens and Jazayeri (2003), and Dechow and Mouritsen (2005) have addressed the effects of changes to management accounting systems. Each of these studies will be discussed briefly below.

In a field study of a single company, Burns and Baldvinsdottir (1999) observed that SAP centralized the accounting function and decentralized control to many people in the company who became “hybrid accountants”. The traditional core activity of management accountants, posting the books, was delegated to others in the company. They cite the director of finance saying: “They may post the odd correctional entry. In fact some analysts aren’t allowed to post. They generally are analytical people rather than analytical accountants.” One conclusion that can be drawn from this study is that management accountants have become analysts.

Caglio (2003) studied an Italian company to understand how the implementation of an ERP system challenges the definition of the expertise and roles of accountants. Caglio found three structural characteristics that jointly materialised during the project (2003: 140-141):

1. a higher degree of standardization of accounting activities and practices
2. a stronger need for integration and interfunctional collaboration
3. a more prominent role for the accounting department in the management of the new IT system.

Quattrone and Hopper undertook two case studies of ERP implementations to obtain insights into “... how new systems give rise to multiple spaces and times within [companies]” (2001: 403). The case studies were conducted over 12 months at multi-national companies that were implementing SAP systems. One study included various hierarchical levels and locations in a large American multinational company. Twenty managers were interviewed. The

other study was the sales and distribution function of the European headquarters of a Japanese multinational company. Twelve managers were interviewed in this second study.

Quattrone and Hopper (2001: 420-426) found that with the implementation of the ERP system, control went from a single point or "totalitarian" view of control with the controller during periodic reporting to a multiplicity of loci of control available at anytime. Anyone with access to an ERP system can "exert control as they wish, slicing and dicing the organization and information, and defining what should be controlled, how and why, differently." They add that, "integrated business functions decide what is best for each business area and accountants analyze how this can be obtained." They conclude that if the centres of control are changed as with ERP implementations, it is necessary to re-conceptualize accounting and control (Quattrone and Hopper, 2001: 430).

In a later paper dealing with the same two subject organizations, Quattrone and Hopper (2005) concluded each organization adopted different strategies, which resulted in different configurations, implementations and usages of the ERP system.

Granlund and Malmi (2002) also studied the effects of ERP systems on management accountants' work, with preliminary and brief field studies at ten companies. The working hypothesis that ERP systems would allow management accountants to devote more time to business analysis was supported by five of the ten companies studied.

Baxendale and Jama (2003), from an assessment of ERP system functionality, conclude that management accounting data integrity and reliability will increase. The use of relational databases allows information to be shared rather than re-entered. Formal processes exist in ERP systems to ensure reliability by automatic counts and reconciliations. These conclusions were not empirically tested.

Meall (2003) studied the transition of budgeting at Southern Water, a UK company, from spreadsheet application to ERP-based budgeting. Anecdotally, Meall reported that the ERP-based budgeting system reduced budget preparation time, allowed more time for analyses, and increased collaboration. This case study did not suggest that the ERP system could make budgeting redundant as did Hope and Fraser (2003), but instead suggested that ERP systems can improve the efficiency and effectiveness of budgeting.

Scapens and Jazayeri (2003: 203) reviewed the literature to find that "ERP systems are having relatively limited impacts on management accounting and management accountants." In view of the literature, the purpose of Scapens and Jazayeri study (2003: 204) was "to explore the processes of change and to examine in more depth the nature of the changes in management accounting which have accompanied the implementation of an ERP system ... within a

specific organization.” The field study was conducted from 1996 to 1999 at the European division of a US company. The process focus to study management accounting was crucial, according to these authors, as ERP systems are process systems. Process systems lead to more information sharing and teamwork, yet also greater centralization of the information processing activities.

Scapens and Jazayeri (2003) judged the ERP system to have led to a number of changes to management accounting that is, the elimination of routine jobs, the development of accounting knowledge in line managers, the production of more forward looking information, and a wider role for management accountants. More specifically, Scapens and Jazayeri (2003: 224) state that the move from record-keeper to internal consultant requires management accountants to acquire new skills. Rather than information reporters, management accountants need to be sales persons and change agents. In their view management accountants need to sell ideas for accomplishing strategy with information. Scapens and Jazayeri (2003) were not convinced that ERP systems drive the change in management accounting. Overall their findings were unclear in suggesting causes of the changes to management accounting.

Dechow and Mouritsen (2005) studied two Danish organizations to understand the impact of ERP systems on integration and control. They found that ERP systems “are highly involved in transforming and establishing management control agendas through concerns for integration” (Dechow and Mouritsen, 2005: 724-725). In particular, they concluded that integration is not a solution but rather a means by which to problematise through the process. They noted that this represented a way of transporting information across localities in such a way that suited the needs and requirements of different parties and different times.

2.4. SUMMARY OF FINDINGS FROM PRIOR LITERATURE

Overall the findings from prior literature on the impact of ERP systems on management accountants do not agree completely that ERP systems will change the work of management accountants in particular ways. Nevertheless the prior literature suggests that management accountants will be less likely to do routine tasks and more likely to be involved with analysis. Similarly, the prior studies suggest that the output of management accountants will likely be more precise, more accurate and produced more frequently. However, there is no conclusive evidence to support these expectations from the research on how ERP systems impact capital budgeting, budgeting, and other components of a management accounting process. In summary, there is confusion in the literature as to the potential for ERP systems to change management accounting and a lack of clear identification of the changes that have actually occurred. Burns and Scapens (2000) suggest that, perhaps, management accounting will take longer to reflect changes because of institutional forces.

3. RESEARCH METHOD

This preliminary study will be guided by the literature, which contains substantial ambiguity about the impact of ERP systems on management accounting. Although the focus of this study relates to the process of management accounting, special attention is devoted to the impact of ERP systems on capital budgeting as a specific and important management accounting technique.

In committing to investments with returns that come later, capital budgeting has the inherent challenge of dealing with uncertain future events. In addition, the economic effects of capital projects are difficult to track to future revenues, expenses and costs because the spreadsheets that have been used for analysis are not typically connected to the company's accounting and operating systems, past, present, or future. This has resulted in the sometime approval of the wrong projects, and more importantly the inability to ascertain what the implemented projects will accomplish in terms of revenues, costs, expenses, and resulting profits. According to Cook *et al.* (2000), these shortcomings in capital budgeting techniques can potentially be reduced or eliminated with the increasingly prevalent ERP systems.

3.1. TRADITIONAL APPROACHES TO CAPITAL BUDGETING

Capital budgeting can be changed by ERP systems. As noted, it has been done separately from the firm's accounting and operating systems, past, present, or future. In a traditional non-ERP setting capital budgeting may be completed separately with a spreadsheet. For example, given a project for outlays for replacement equipment where the time frame for the internal rate of return or net present value calculation could be ten years. The project could include an improved production process to reduce material waste as well as labour costs. Also, the new process could reduce the time for set-ups for different product runs, and thus enable the capture of special orders where quick response is necessary.

As IRR/NPV analysis is incremental, the spreadsheet would show the incremental cash flows for capital outlays, reduced material costs, reduced labour costs, and the contribution from the additional sales. However, the data items on the spreadsheet of pre-ERP capital budgeting are not explicitly linked with what activities happened, what activities are happening, or what activities will happen in the future. This separateness can be resolved by ERP systems integrating capital budgeting with companies' accounting and other systems.

3.2. BENEFITS OF ERP FOR CAPITAL BUDGETING DECISIONS

Potentially, capital budgeting can be done significantly differently with a functioning ERP system because of the integration of accounting and other systems. The common unified data warehouse is able to integrate, for example,

financial transactions, activities in activity-based costing (ABC) and activity-based management (ABM) sub-systems, budgets and plans, and performance measures such as customer satisfaction or an entire balanced scorecard. Of course for these expectations to be realized, companies would need to have a full range of ERP modules, which may be presently uncommon.

Consider how ERP systems impact capital budgeting in its three stages: (1) preparation and approval, (2) operational, and (3) post audit. During the first stage, the ERP system will allow the revenue and cost items to be linked to actual activities. For example with new equipment, if some of the costs are labour, the actual model for labour use in manufacturing will be assessed and improvements in labour productivity due to the new asset will be modelled. Modelling allows alternative approaches or variants to be tested and understood. Similarly, if there is a change in material usage, this will be modelled and the impact considered in the capital project evaluation. In effect, ERP systems allow capital projects to be modelled as mini independent businesses or investment centres.

For the second operational stage, the models used in the first stage, preparation and approval can be compared to the actual model in use regarding labour, material, and asset input and the actual outputs. In effect, the modelled assumptions can be explicitly validated with experience. Similarly, for the third stage at or near the end of the project the models can be assessed to do a post audit to determine the life-time success of the project and to provide feedback on the capital budgeting process.

As with capital budgeting, the impact of ERP systems could be deductively specified, or more precisely conjectured for other management accounting practices such as budgeting, operational statements, forecasting, performance measurement, and costing. The above capital budgeting example indicates that ERP systems have the potential to lead to greater integration, accuracy, speed, and effectiveness. As management accounting techniques involve company information, it would be reasonable to expect, from the implementation of ERP systems, improvements at least in integration, accuracy, speed, and effectiveness, if not a major change such as the elimination of budgeting.

3.3. RESEARCH DESIGN

Most of the early research on the impact of ERP systems on management accounting has been through field studies. Additionally, given the lack of conclusive findings in the literature about the impact of ERP, this research will employ a survey of large corporations incorporating open-ended questions about changes in capital budgeting and other management accounting practices. However, it is proposed that this will be an exploratory study given that there is uncertainty as to whether there have been any significant changes to management accounting with greater use of ERP systems.

3.3.1. *The sample*

This exploratory study of the impact of ERP on management accounting was tested with Australian companies of sufficient size to have acquired ERP systems in the past 10 years. The sample consisted of 105 companies among the ASX-listed companies with sales of more than 400 million USD according to DatAnalysis.¹ The companies represented classified industry groups including: automobiles and components; capital goods; chemicals; commercial services and supplies; construction materials; consumer durables and apparel; container and packaging; energy; food, beverage and tobacco; food and staples; hotels, restaurants and leisure; media; metals and mining; paper and forest products; retailing; software and services; telecommunication services; transportation; and utilities.

Larger firms tend to implement ERP systems for two reasons: their size indicates they can afford the required monetary outlays and they require the systems to look after their extensive and routinised transactions. Capital budgeting was deemed important for the above industries, which tend to be capital intensive. The Chief Financial Officers (CFOs) of the companies were identified through DatAnalysis in order to telephone them to verify the incumbent CFO, exact name and title, address, and telephone number. New Zealand and foreign headquartered companies were eliminated because of the expected difficulty in gaining responses. In addition, companies were dropped from the sample where the CFO could not be identified or verified. This process resulted in a reduction of the sample size from 105 to 90 companies ranging in size from 400 million USD to 34 billion USD in sales.

3.3.2. *The Survey Instrument and its Administration*

As there has been a lack of conclusive findings in the literature, it was decided that open-ended questions about the changes that are occurring with capital budgeting and other management accounting practices would be a feature of the survey sent to participating companies. This approach recognizes Scapens and Jazayeri's (2003) concern that the changes occurring with management accounting may be caused by non-ERP factors. The survey asked various demographic questions about the role of the respondent within the organisation, the type of industry represented by the firm and the gender of the respondent. In terms of the questions specifically related to management accounting practices and capital budgeting, there were a range of yes/no questions as well as questions inviting respondents to describe practices and changes in practices over the past 10 years within organisations. A copy of the survey is provided in Appendix 1.

¹ DatAnalysis is an electronic business resource that provides detailed information on all companies listed on the Australian Stock Exchange. Included are corporate details, company history, extracts from company reports, financial tables, shareholder information, company announcements, and company reviews.

The survey was sent to the 90 CFOs in May 2005, with follow up requests being made in June and August. Respondents were given a choice of responding either by mail or through a web response. Telephone contacts were made to non respondents together with a second and third mailing of the survey. There was a great willingness among most telephone-contacted CFOs to respond, but they often admitted to pressing priorities. Those CFOs who claimed to have responded or who were unwilling to respond were eliminated from subsequent mailing and telephone follow ups. CFOs with less than ten years of experience tended to involve an employee with the required experience or stated they chose not to respond.

4. RESULTS

4.1. DEMOGRAPHICS OF RESPONDENTS

Of the 90 CFOs sampled, 35 responded giving an overall response rate of 38.9 per cent. Table 1 shows the demographics of respondents. Two respondents self identified as female and 33 as male. The median size of the sampled companies was 1.1 billion USD (based on information from DatAnalysis) and respondents were representative of a range of industry types with Industrial (17 per cent), Consumer Staples and Materials (both 20 per cent) being the most highly represented industry groups.

TABLE 1. – **Demographics of respondents (n = 35)**

	Frequency	Per cent
Gender		
Male	33	94.3
Female	2	5.7
Position within organisation		
CFO	16	45.7
Finance Director	2	5.7
Information Technology Director	1	2.9
Other	11	31.5
Type of Industry		
Energy	3	8.6
Industrial	6	17.1
Consumer staples	5	14.3
Telecommunication	1	2.9
Materials	7	20.0
Consumer discretion	7	20.0
Utilities	1	2.9
Other	5	14.3

Source: Author survey.

4.2. IMPACT OF INFORMATION TECHNOLOGY ON CAPITAL BUDGETING

The first five questions in the second section of the questionnaire related to the impact of information technology on capital budgeting techniques. Table 2 provides a summary of the responses to the summary questions, while the open-ended responses are summarised in each category of discussion below.

TABLE 2. – Capital budgeting techniques

Capital Budgeting	Frequency	Per cent
Changes in past 10 years		
yes	29	83
no	6	17
Introduction of ERP Planning system		
yes	27	77
no	8	23
Impact of ERP on capital budgeting		
yes	9	26
no	26	74

Source: Author survey.

4.2.1. Changes in Capital Budgeting Techniques

In the first instance respondents were asked to indicate whether or not the firm's capital budgeting techniques had changed in the past 10 years. Twenty-nine (83 per cent) of respondents' stated there had been changes to capital budgeting techniques, while six indicated that there had been no changes.

In identifying the nature of the changes in capital budgeting techniques, respondents were asked to specify the nature of the changes. Responses were received from 26 companies. The most common themes were (1) an increased use of analytical or measurement tools for capital budgeting, such as risk adjusted profitability index, risk adjustments, ROI, WACC, DCF, IRR, payback, and (2) an increase in formalisation and rigor in the overall process, such as an investment management committee, or CAPEX manual.

4.2.2. ERP and its impact on Capital Budgeting Techniques

Seventy-seven per cent (26) of respondents indicated that their companies had ERP systems such as SAP, Oracle or PeopleSoft. In addressing the possible impact of ERP systems on capital budgeting techniques, only nine respondents stated that this was the case. Respondents who stated that their ERP system affected capital budgeting, noted that ERP systems provide capital budgeting with better information. Recognizing that the ERP system provided better information, one respondent said

"The amount and quality of information available with which to make capital budgeting decisions has vastly increased. The system essentially is a da-

tabase of information that can be mined. Higher levels of system integration feeding into the core accounting systems have also increased the sophistication of the process.”

Another respondent admitted the ERP system provided better information, but added that

“the information is available in the system but most of the process is Excel driven therefore largely unchanged.”

The ERP systems also allow the capital budgeting processes to be stored online, which allows for approvals by various levels to be done more easily. This improvement in the process occurs despite capital budgeting becoming more integrated and more complex.

4.3. CHANGES TO MANAGEMENT ACCOUNTING SYSTEMS

The second part of the questionnaire addressed the impact of information technology more generally on management accounting systems. For example, each respondent was asked to describe how their company's management accounting systems changed in the past ten years using five headings: budgeting, operating statements, forecasting operating performance, performance measurement and costing.

4.3.1. Budgeting

Thirty-one respondents reported changes to budgeting in the past ten years. The change to budgeting identified by respondents in order of frequency was: more rigorous, aimed at maximizing shareholder value, more accurate, more automated, more comprehensive, more integrated among financial statements, for more periods of time, revised more frequently, more sophisticated, more structured, more disciplined, simultaneously “top-down” and “bottom-up,” more detailed, more transparent, easier to review, and more strategic. Many companies were replacing spreadsheets with integrated budget modeling software. The budgeting process was the same, but information technology made budgeting more functional. One respondent stated:

“Divisional and segment budgets have moved from being focussed on outputs (i.e. particular categories of expenditure) to being focussed on outcomes (i.e. overall profitability). The budget process has also been rationalized to ensure information submitted to the board is concise enough for useful decision making.

4.3.2. Operating statements

There were 29 responses; outlining changes to operating statements in the past ten years. These changes included in declining frequency: more automated; more focus on KPIs; more refined; more transparency; more com-

prehensive; more focus on non-financial performance measures; more detailed; more focus on cash flows; more focus on marginal returns and ROC; more standardization; more segmented reporting; more analysis of costs; more in line with accounting standards and best practices; operating statements now available online in real-time or next day. The views of several respondents about the changes to operating statements are summed up by the follow quote:

"No substantial change other than greater use of information technology in the process."

Some respondents mentioned the use of advanced tools such as OLAP (on-line analytical processing), Hyperion, and Cogros in addition to various ERP systems, for example:

"A feature of the last 10 years has been different divisions operating on different ledgers and charts of account. Moving to a single ledger and chart of accounts is one objective of the ERP system."

4.3.3. Forecasting

There were 31 responses related to changes to forecasting in the past 10 years. The responses in declining frequency were: more frequent forecasting or re-forecasting; rolling forecasts; more detailed; moved from spreadsheets to Hyperion or other management support system; better integration; longer forecasts; more accurate; more use of spreadsheets; and more consistency among organizational units.

One respondent, with an ERP system, summarized the changes:

"Forecasting was completed on Excel spreadsheets and consolidated. Now forecasting is made easier as the actual data can be copied and forecast out within the one database, producing standard reports and consolidated within a much shorter timeframe. The focus is more on accuracy and analysis."

4.3.4. Performance measurement

Responses were received from 32 of the 35 respondents in relation to performance measurement with only three respondents reporting no changes during the past 10 years. The changes in declining order of prevalence were: more KPIs; more non-financial performance measures; more financial performance measures; more analysis focused on leading indicators; greater emphasis on balance sheet and cash flow; greater depth and more targeting; more timely or real time; performance based incentives; extensive analytical support from the data warehouse; greater use of information technology; on-line goals and objectives; and performance measures provided to board.

One respondent, from a company with an ERP system, summarized the impact on performance measures as follows:

“Increased complexity of performance measurement systems due to increased knowledge of key business drivers, and the increased capabilities of a fully computerized integrated system.”

Another, with the ERP system, said timely performance information is no longer difficult to obtain.

4.3.5. Costing

There were only 27 of a possible 35 responses related to changes in costing over the past 10 years. The changes to costing in declining frequency were: improved modelling; ABC introduced; more rigor and accuracy; refinements; more frequently updated; more summarization; more detail; better tracking; improved with centralization of plant costing; greater use of information technology; internal charging introduced; and absorption base used more widely.

4.4. IMPACT OF COMPUTERISATION ON MANAGEMENT ACCOUNTING

All respondents indicated that computerisation had an impact on the company's management accounting system in the past ten years. From question 3, it was learned that 27 of the companies had ERP systems, thus eight companies must have used non-ERP computerisation to respond positively to this question. A further open-ended question sought to gain feedback on the specific types of computerisation that had changed the firm's management accounting and control system. This question provides a different perspective on understanding management accounting change. Respondents from 30 of the companies explained how computerisation, which includes ERP systems, affected their management accounting. The most common response was similar to the following quote:

“Computerisation has considerably shortened reporting timeframes and increased levels of accuracy. Detailed information is now available on a daily basis.”

Another respondent basically said the same, but added that this was all done while work volumes increased and staff levels remained stable/unchanged. Other descriptions of the changes included in order of declining frequency: more integrated; more computerized; more automated; streamlined and faster consolidations; faster production of information; greater transparency; more data integrity; real-time control; better understanding of fixed and variable costs; able to calculate profitability at lower organizational levels; more accuracy; year-end results can be more readily forecasted; increasing use of ABC and its derivatives; and more emphasis on value added activities. One respondent, at a company with an ERP system stated:

"More a case of better use by management of the existing computer systems platform than major investment in new platform."

This with other responses implies that benefits from ERP take time to accrue.

5. DISCUSSION

The process of capital budgeting, at the companies where the CFOs responded to this survey, would appear to have not changed greatly over the past ten years. There is no indication from the findings of this study that capital budgeting is being linked to the activity level as suggested by Cook, *et al.* (2000). Only nine of the respondents with ERP systems stated that those systems affected capital budgeting suggesting that the impact of ERP systems on capital budgeting has been minimal and, probably, preliminary. ERP systems and other forms of computerisation have contributed to capital budgeting through: (1) an increased use of analytical or measurement tools for capital budgeting, such risk adjusted profitability index, risk adjustments, ROI, WACC, DCF, IRR, payback; and (2) an increase in formalisation and rigour in the overall process, such as an investment management committee, or CAPEX manual.

The 90 companies were selected from the largest manufacturing and retail companies operating in Australia. There was no indication that the responding companies were biased, thus the results are highly suggestive of the status of capital budgeting in large Australian companies.

It was found that computerisation impacted the management accounting processes at all responding companies, although only 27 of the 35 had ERP systems. This finding suggests that non-ERP computerisation was also impacting on management accounting. It is difficult to separate out the exact impact of ERP systems from the more general computerisation which improved the functionality of management accounting. Every aspect of management accounting improved, including more detail, more accurate, faster, more integrated, and improved data integrity. However, the same management accounting techniques were being used, but they were performing at a higher level.

Changes had occurred to all management accounting at the five identified areas in the past ten years. Budgeting had been reported as changed in 31 of the 35 firms. In particular the functionality of budgeting had greatly increased by moving to spreadsheets and then to integrated budget models with ERP systems and such management support systems as Hyperion.

There were 28 responses out of a possible 35 that stated that operating statements had changed in the past 10 years. In particular, functionality had improved with computerisation, specifically ERP systems with their single chart of accounts and relational data warehouse. The operating statements had changed with more automation, real-time or next day production, with for

example, more focus on KPIs. Twenty-nine respondents said forecasting had changed in the past ten years. Functionality improved by moving production to spreadsheets and then to ERP systems and management support systems such as Hyperion. Functionality also improved with performance measurement during the last ten years in 29 of the responding companies. Performance measurement was extended because of a greater understanding of operations and because of computerisation, particularly ERP systems; performance measurement was more extensive and timelier. Moreover, this greater level of performance was accomplished without increases in staff.

Costing was the management accounting technique where the least changes occurred, with only 21 companies being cited for changes in the past 10 years. Computerisation had contributed to costing improvements such as improved modelling, ABC implementation, and more rigor and accuracy.

6. CONCLUSION

ERP systems and computerisation are changing the practices of capital budgeting and management accounting. Based on this sample of Australian companies, the impact is important but, probably, preliminary. Computerisation is affecting management accounting, but it is difficult to sort out the impact of each. ERP systems lead to highly standardised and highly computerised information. Without fundamentally changing them, ERP systems are allowing capital budgeting, budgeting, operating statements, forecasting, performance measurement, and costing to be more detailed, more accurate, and reported more quickly.

The results of this study suggest that there have not been major changes to management accounting practices in the Australian context in the last ten years. The predictions of Cook *et al.* (2000) were not able to be substantiated from the findings of this study. There was no mention in responses of capital budgeting being done at the activity level. Actually, the findings were without any discussion of activity level management accounting, other than a few mentions that ABC had been implemented. In addition, there were no indications from the respondents that it was contemplated that budgeting was to be abandoned.

Computerisation, including ERP systems, is changing the way management accounting is being done in the current economic environment and thereby improving the functionality of management accounting techniques. The findings of this study suggest that the least changes appeared to be occurring with costing.

There is another important inference to be gleaned from this preliminary survey. Prior to ERP systems, the main systems were owned by the CFO's unit. With ERP systems, the CFO is just one of the many owners, and management accountants must start accessing information produced by these

others systems, which are integrated with management accounting systems, to assist management. Some respondents referred to these changes, especially to increased non-financial information. In other words, management accounting must move beyond accounting systems.

This research has limitations. The sample is not large, and the respondents may have biased and defective memories. Admittedly, the best method for studying management accounting change is longitudinal. However, archival data for longitudinal studies are very difficult to obtain and studies themselves are time consuming. This preliminary study suggests that such longitudinal studies would be valuable.

From this preliminary research a number of suggestions for future research and teaching have been inferred along three themes. The first is for a detailed examination of exactly how computerisation and ERP systems can improve capital budgeting and management accounting. There is need for more understanding of ERP systems, and how they relate to the existing management accounting techniques and more importantly identification of the common functionalities. There is also a need to understand how ERP systems are implemented, the time required and the costs and benefits from the various modules and various management accounting techniques. The strategic importance of ERP needs to be established. Is it necessary or an alternative to other forms of computerisation? The answer to this question requires detailed, longitudinal field work.

The research to date on ERP has largely been done without detailed understanding of the system processes. In the past ERP systems were considered “black boxes” that would have some impact on management accounting. The initial step in further research would be to carefully examine the functionality of ERP systems, particularly, in regard to management accounting. This should be done with colleagues in the information technology department/school, ERP vendors, and vendors offering management support systems such as Hyperion. Then there is the requirement to track the computerisation and ERP use at a group of companies longitudinally to understand how computerisation, including ERP systems, impacts management accounting and creates competitive advantage. Public information would be available, but also there would be the need to contact persons from the CFO area as well as persons in the IT area of the sampled companies.

The second theme for future research is an advocacy role for researchers, which may be a problem. However, if we consider management accounting to be an applied science like medicine, then like medical researchers we need to advocate. James McKinsey (1922) advocated budgeting, and founded the consulting company that has his name, McKinsey and Associates. Similarly, it was Cooper and Kaplan (1988) and Kaplan and Norton (1992) who, respectively, established activity-based costing and the balanced scorecard as management accounting techniques.

Third, there is an opportunity to instruct students on capital budgeting and management accounting in an ERP environment. It is likely that the simulation of a company and its ERP system would be needed to adequately prepare students for this change in environment. The pre-ERP approach to management accounting as paper and pencil or Excel calculations would need to be replaced with the ERP approach to management accounting recognising ERP as a process within a set of systems.

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APPENDIX 1. – The Impact of Information Technology on Capital Budgeting and Management Accounting.

You are being asked to complete the demographic questions on this page and the questions on the reverse side.

Please select a position which best describes your role / position by placing a cross

[X] in the appropriate box.

[] Chief Financial Officer

[] Finance Director

[] Other, please specify,

_____.

[] Executive Finance Director

[] Information Technology Director

Please select, from the list below, which best describes the industry of your firm by placing a cross [X] in the appropriate box.

[] Energy

[] Industrial

[] Consumer Staples

[] Telecommunication Services

[] Materials

[] Consumer Discretionary

[] Information Technology

[] Utilities.

Please place a [x] as appropriate for your gender.

[] Male

[] Female

After completing the above questions, please turn to the other side of this page and, in writing, respond to the four questions. You may respond on the reverse page or on other pages as needed.

PLEASE RESPOND TO THE QUESTIONS BELOW IN THE SPACES PROVIDED.

1. Have your firm's capital budgeting techniques changed in the past 10 years?
Yes [] No []
2. If you responded "Yes", please specify in the space below, the nature of those changes in capital budgeting techniques.
3. Does your firm have an Enterprise Resource Planning system (such as SAP or PeopleSoft) or comparable information technology systems?
Yes [] No []
4. you responded "Yes" to the above, has this computerisation affected your firm's capital budgeting techniques? Yes [] No []

5. If you responded “Yes”, to the above, please describe in the space below, how has computerisation affected your firm’s capital budgeting techniques?
6. the headings below, describe how your firm’s management accounting and control system has changed in the past 10 years.
 - Budgeting
 - Operating statements
 - Forecasting operating performance to the end of quarters/years
 - Performance measurement
 - Costing.
7. Has computerisation at your firm had an impact on your firm’s management accounting and control system?
Yes [☐] No [☐]
8. If you responded “yes” to the above question, please specify how computerisation has changed your firm’s management accounting and control system.

THE OPERATION OF A CAPITAL MARKET IMPOSED ON A TRANSITION ECONOMY COMPARED TO THAT OF ITS WELL-ESTABLISHED PEER: THE WARSAW STOCK EXCHANGE VERSUS FRANCE'S EURONEXT

ABSTRACT

It is generally acknowledged that efficient financial markets support economic transition. Capital markets are a priority given their potential to enhance economic growth and development. In particular, stock market reporting requirements provide opportunities to diminish information asymmetries across economic agents when compared to those in bank-dominated financial sectors. This is likely to be important in transition economies, where once state-owned industries have been privatised.

In this paper we analyse the results of a policy initiative to promote capital market development. This is the imposition of a specific capital market structure in Poland: that of France's Euronext. Using intraday data for the Euronext market and Warsaw Stock Exchange (WSE) we compare each market. While overall liquidity is greater in Euronext, range based intra-day volatility is significantly lower in the WSE. Surprisingly, for stocks with the highest market capitalisation the WSE has lower transaction costs in the first (largest) decile than Euronext. Thus, while the established market is significantly more liquid in terms of average trade size and trade numbers, the WSE sometimes offers lower transaction costs or volatility. From this we conclude that the policy of superimposing a stock market structure on the Polish economy has been a relatively successful experiment.

JEL Classification Numbers: G14, G18, D02

Key Words: market microstructure, transition economy, Warsaw Stock Exchange, Euronext (France), regulation

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1. INTRODUCTION

In the case of economies in transition it is generally accepted that the move from a planned to a market economy will be assisted by efficient capital markets. In particular, a liquid stock market may facilitate the movement of capital to existing firms and also promote the development of new industries using both domestic and foreign capital. Capital markets may also diminish the information asymmetries often present in transition economy markets.

The collapse of communism last century led most of the former centrally-planned economies to artificially introduce one of the strongest symbols of capitalism into their economies: stock-markets. Poland was no exception. With the financial aid of the French government, the expertise of the French

Bourse (SBF), SICOVAM, and the French central depository, the Warsaw Stock Exchange (WSE) was formed on October 16th 1990. The WSE was privatised with the owners being the Polish state, several banks, and the brokerages houses.

This paper provides quantitative analysis of the differences at a microeconomic level between the market qualities of a fully developed capital-market in a high-income nation (France's Euronext) with a transition economy stock market (the WSE). The results from this paper are particularly sound, as the underling structures of both markets are the same, the WSE being a replica of the Euronext market structure. Thus we have the opportunity to analyse the results of a natural experiment. This, allows us to accurately determine the statistically significant differences between market qualities present in both markets. In doing so we also are able to clarify and resolve some of the questions framed by Kairys (1999, 2000) concerning the development of the WSE and the progress made after 2000.

As this research measures various market-microstructure variables for Poland's WSE and compares these with the French Euronext, a normative statement about the maturity of the WSE is made possible. By analysing the development of this capital market and comparing it with a fully developed market that uses the same platforms, it is possible to determine the point-in-time stage of development of the WSE. From this it is reasonable to suggest that the policy of inorganically superimposing a stock market onto the Polish economy has been a positive one, which has possible implications for other transition/emerging economies.

Encouraging the development of stock markets has a number of potential benefits for transition economies, given that the presence of asymmetric information in less developed financial markets encourages a preference for debt (Beim and Calomiris, 2001: 195-196). If it was decided to only promote the development of the banking system during the transition process, information symmetries generated by the stock market would not have flowed through to the rest of the economy.

The reporting requirements of the stock exchange mean that information is relatively symmetrical across economic agents as compared to the case of a financial system dominated by the banking sector. By fostering a stock market approach to economic development smaller investors can access diversified revenue streams in small tranches. This is important in transition economies where once nationalised industries were privatised.

2. FINANCIAL DEVELOPMENT, MARKET ARCHITECTURE AND THE ECONOMICS OF TRANSITION

A substantial volume of theoretical discussion and empirical evidence has emerged over the last three and one-half decades regarding the role of finance in economic development. Prior to this time the dominant mainstream

schools in economics had largely ignored the potential for financial institutions to play a positive role in economic development. The Classical School, by viewing real and financial activities as being essentially separable, denied financial institutions an important role in achieving equilibrium outcomes (Beim and Calomiris, 2001: 69). Keynes, on the other hand, in suggesting the suppression of interest rates to encourage investment and therefore economic growth, assigned a potentially negative role to financial institutions. Thus, Keynes essentially mounted a case for financial repression as an aid to economic development (*ibid*, 69-70).

While general agreement has not been reached,¹ much recent literature supports the argument of a positive role for financial development and financial institutions in the development process. In doing so it argues that the development of financial markets and institutions is at least a critical component of the growth process even if not a pre-condition for this growth (e.g., MacKinnon, 1973; Shaw, 1973; Pagano, 1993; Demirgüç-Kunt and Levine, 1996; Levine 1997, 1999a, and 1999b; Khan and Senhadji, 2000; Bloch and Tang, 2003). That it cannot be asserted to be a pre-condition reflects, importantly, well-known difficulties in identifying a causal direction, and thus moving beyond recognition of a simple positive association between financial development and economic growth (see Levine and Zervos, 1998; Rajan and Zingales, 1998). More recently additional support for the argument of a positive role of finance in economic development has been provided by Beck and Levine (2004). Using panel data methods they address many of the perceived shortcomings of earlier empirical studies, to show that both stock markets and banks are significant factors in economic growth.

2.1. STOCK MARKETS, FINANCIAL SYSTEMS ARCHITECTURE, AND THE WSE

A liquid and efficient stock market is generally accepted to be an important feature of high-income industrialised economies. As the centrally-planned communist nations of Central Europe lacked such infrastructure, financial systems architecture was instrumental in their transition into market economies. Given their recent establishment relatively little attention has been granted to the transition economies of Central and Eastern Europe, even though other emerging economies' capital markets have been investigated several times by authors such as Glen (1994). An exception to this is the study by Kairys (1999), which compares the stock exchanges of Poland, Latvia, and Lithuania. Kairys finds that while the three exchanges had similar market

¹ Shan and Morris (2002), Arestis, *et al.* (2002) and Cetorelli and Gambera (2001) provide examples of the case against accepting a uniformly positive role of financial development in economic development. Arestis, *et al.* (2002) note that reasons for their findings include the effects of market imperfections in some countries, including the presence of significant state ownership of financial institutions.

microstructures they exhibited varying degrees of success when measured by market quality metrics. The WSE was shown to facilitate greater liquidity over its continuous order driven market, while a fixed call auction market provides it with a framework more appropriate for facilitating exchange in the lower liquidity markets. This supported the theoretical work of Easley, *et al.*, (1996) who strongly argued that screen trading in low liquidity environments hinders the development of an emerging market.

As noted above, the symbiotic nature of capital markets and economic growth has been well documented and analysed over the last three and one-half decades. However, there is a gap in the literature where the analysis of the dynamics and qualities of these newly developed markets should be. Without such analysis it is difficult to determine the nature of investment within a transition economy. In the absence of a liquid and efficient stock market, investors cannot participate with the knowledge that adequate liquidity is present to reduce many risks. In this situation, an investor would have to place their capital in investments that may be readily converted into a medium of exchange. Due to these liquidity constraints foreign direct investment is stifled as is, potentially, economic growth itself. Stock markets may be superior to commercial bank lending when considering the raising of funds as they are not subject to bank runs and may, in fact, offer other positive externalities such as the conveyance of more timely information flows, Hermes and Lensink (2000). This possible reduction in moral hazard and adverse selection costs is one of many reasons why the newly-established Polish government introduced and fostered the development of the WSE from 1990 onwards, and its subsequent growth and development.

Earlier studies compared and contrasted capital markets of high-income industrialised nations, focusing on differences in market microstructure. Good examples of such papers are de Jong, *et al.*, (1995), Bessembinder (1999), and Venkataraman (2001). Now, after almost 17 years of operation, it is time to compare the capital market in one of the transition economies, Poland, with that of a well developed and regarded capital market. Thus, the point of departure for this research is to gauge success in achieving financial development for a transition economy by comparing its market quality to an exchange built on identical market architecture. Both Euronext and the WSE are electronic limit order book markets, with the only significant differences being the size of the firms listed and the absence of foreign cross-listed firms at the WSE.²

Rather than seeking an optimal market structure, this paper seeks to document the quantitative differences in market quality between a fully developed and transition economy operating off the same basic platform. The WSE after

² The market structures for both markets are, effectively, the same. This has been confirmed using the World Stock Exchange Handbook (2001) and relevant websites. More detailed information can be obtained upon request from the corresponding author.

all, has already determined that the continuous trading mechanism coupled with a daily fixed price call auction is their optimal structure. Effectively, this research gives a metric to the state of the transition economy's development as measured by its capital market qualities rather than the usual macroeconomic metrics such as GDP (Durnev, *et al.*, 2004).

Scholtens (2000) discusses the relative merits of transition economies by focusing on developing capital markets as opposed to a focus on fostering banking finance. In theory, an economy with borrowers who possess strong credit reputations will lean towards a capital market like a stock market where information asymmetries can be nullified through the regular updating of market prices (Boot and Thakor, 1997). Therefore, this paper may also claim to be able to normatively place Poland at a certain stage of its financial and economic development. Empirical analysis however, states that financial system architecture is also based on the progress of an economy's financial institutions and the regulations used to keep them in order. The regulation of financial institutions is not addressed in this paper. Evidence suggests that there is a strong relationship between financial market development and growth. Scholtens (2000) presents the work of Goldsmith (1969), by suggesting that financial development largely occurs during the early stages of economic development when incomes are relatively low. Therefore, there is a strong correlation between growth and market development. By investigating the WSE at a relatively advanced state (where continuous trading was the norm), the authors can make a stronger case for pinpointing the WSE's true state of development.

As financial markets depend on liquidity, which is in turn based upon information flows, it can be seen that they are effectively a tool for good corporate governance. The WSE has strong disclosure rules for such events as mergers and acquisition which implies that corporate governance is maintained well and the market is informed of most events. Scholtens (2000) compares western economy macro economic indicators with Central European figures for the year 1995. In it he shows that there were large differences when stock market capitalisation in the transition economies was ten per cent compared to five per cent in the western economies. The actual quality of these markets, when measured using market microstructure indicators is basically ignored with the reader having no idea of the true costs of liquidity. The Polish economy and the WSE are given sparse treatment as only basic descriptive statistics are reported. While the number of firms listed at the WSE grew from nine to 83 from 1991 to 1996, neither the costs of trading nor of the volatility inherent in the market are addressed. In particular, the comparisons that investors would face if having to choose between trading through Euronext and the WSE are not provided. Indeed, many managers of foreign companies may be wary of cross listing at the WSE as is done at Euronext. This means that Polish domestic investors may be investing in a limited universe and that foreign investors are at an information disadvantage when choosing the lo-

cation of their future investments. While Frydman (1998) shows that privatisation improves the investment performance of formally state owned enterprises there has been little to no work carried out on the performance of the markets themselves. Scholtens (2000) also reports turnover ratios (ratio of equity trade value to market capitalisation) for several transition economies but fails to determine the statistical significance of these differences. He states that these markets are extremely illiquid but does not define liquidity. Finding that the economic role of the stock market in Poland is limited as at 1996 due to limited direct foreign investment and liquidity Scholtens (2000) may have a limited perspective. Hermes and Lensink (2000) suggest that due to the thin liquidity of many transition economies' markets many may experience excessive volatility. Studies of the Asian financial markets conducted by Singh (1997) appear to confirm this while Cho (1986), as presented in Hermes and Lensink (2000), argues that stock markets foster 'short-termism.' Banks on the other hand foster long-term growth and develop long-term relationships with the firms they are financing. Of course, this fails to critically analyse the moral hazard and adverse selections costs associated with this closed form of financing.

Liquidity has been a main-stay of the economics literature for some time, and neither the market-microstructure or transition economy literature has been immune to its significance. The extant literature assumes varying definitions of liquidity. The standard definition is of immediacy of trade. An asset is deemed liquid if an investor can trade the asset quickly in large volumes without there being too great an impact on the price (Black, 1971; Glosten and Harris, 1988). Therefore, in order facilitate this analysis three influential factors—time, volume and price—must be analysed simultaneously. The liquidity of a stock market is partially dependent upon its microstructure. Hermes and Lensink (2000) recognise this and suggest that the organisation of trading is of fundamental importance to policy makers in transition economies. Kairys (2000) finds that when continuous trading replaced a closed call auction market there both positive and negative repercussions. Firstly, the more liquid stocks improved in terms of liquidity and secondly the less-liquid stocks suffered. This paper furthers this work by applying a market-microstructure perspective and tool set to the WSE and a more recent and rich data set.

3. METHODOLOGY AND DATA

While a discussion of data in empirical research is always required, it takes on a different meaning in a case study like this. By analysing the institutional detail of a market it is possible to critically analyse the characteristics of the market that minimise the occurrence of information asymmetries and maximise information flows. This is critically important in the economics of transition as regulators face the challenge of focusing on development through

multiple strategies. In the past this has meant that a debate has occurred where people advocate either the predominance of capital markets or that of the alternative in the form of the domestic banking system. This research does not enter this debate but does argue that the capital market solution has several positive attributes.

3.1. INSTITUTIONAL DETAIL

This paper analyses data from March 2000 to the end of October 2001 and therefore requires a description of the institutional details for that period in the markets being scrutinised. The following information has been taken from the World Stock Exchange Handbook (2001).

As previously mentioned, Euronext Paris was superimposed on to the Polish economy rather than letting the Polish organically reproduce a capital market in their own style. There were obvious benefits in doing so. It must be noted though, that differences between the two economies might have led to the failure of the new system.

The Paris stock exchange (Euronext) segments stocks into three categories relating to size known as *Marché*, with varying listing requirements that diminish through the first through third *Marché* accordingly. Companies across the spectrum must report their financial statements in the newspaper within six months of the end of the financial year and within four months for their half-yearly reports. The Bourse must be notified of any news that may affect share prices while the public must be notified of any general meetings or information that directly affects the share price such as dividend announcements etc. Investors are obliged to make a takeover bid when their holding reaches 33.3 per cent of the outstanding shares while there are caveats to company activity during such a bid such as the prohibition of the releasing further shares during that same period.

Investors are protected through several measures that the Bourse can implement. The market for a stock may be temporarily suspended should the Bourse think it in the best interest of the share holders (this may be for 15 or 30 minutes if there is a fluctuation of five per cent or ten per cent from the previous day's closing price) while the Commission de Opérations (modelled on the United States SEC) may invoke other broad measures to ensure fair trading. Circuit breakers are applied and based on the liquidity of a security being outside the measures stipulated by the metric named "Fixing A" or "Fixing B"; groups that are determined by the relative liquidity of a stock. To protect investors from broker default member firms must maintain minimum capital bases, risk spreads, liquidity, and a division of member and client accounts. The Bourse also maintains a guarantee fund. If an investor increases share holdings beyond certain discrete boundaries then they are compelled to inform both the company whose stock is being traded and the

Bourse itself. If an investor is a non-European Union resident then they are barred from holding more than 20 per cent of a company's stocks without receiving authorisation from the Finance Ministry.

Due to the size of the French economy the stock market has many well defined index composites that reflect the diversification present in it. The range from industrial (energy, intermediate goods, automotive, etc.) and services (merchandising) to financials (real estate and investment companies, etc.). Commission and fees for trading are negotiable while the clearing method is book-entry. Settlement is T+5 where T is the day of the trade. Monthly settlement is also available. Trading on Paris is organised as an electronic limit order book with no market makers with affirmative obligations in the largest stocks. Outside of the top stocks market makers are given affirmative obligations and privileges to guarantee a fair and orderly market in the assigned stocks. The least liquid stocks are called once or twice a day, when an auction price is determined.

In comparison, the Polish economy where the WSE functions is a developing economy in transition from communist reign in 1989. As a result of this, the WSE is much smaller in size and relative diversification than the Paris Euronext market. In order to list at the WSE a company must have been worth at least 24 million Zloty, as should its book value. The listed capital must have had a minimum value of seven million Zloty spread over a minimum of 500 shareholders whose total holdings do not exceed five per cent of total value. In order to list at the WSE company pre-tax profits must have exceeded five million Zlotys for three consecutive years prior to listing. To seek listing a company must disclose information pertinent to the ability of an investor evaluating asset values, financing sources, profits/losses, and development prospects. To list on the main market a company must release three years of financials and is required to continually disclose quarterly and semi-annual reports, and annual reports for auditing purposes. Relevant information held by the company had to be shared with the Polish Securities Commission, the WSE, and the Polish Press Agency.

Physical delivery is the clearing method for the market and settlement is T+3. Commission ranged from 0.75–2.00 per cent, but was negotiable on trades over 500 million Zlotys. There was also a 0.2 per cent stamp duty payable by the seller.

As the microstructure is effectively the same for both markets the efficiency of the French system was exported to Poland. The addition of public disclosure through the press as a requirement for listing was critical, as individuals had a means to diversify their income with some confidence. This is particularly important in a system where it was not known how corruption would be viewed going forward. If the banking system were the only means of raising capital then information asymmetries could lead to exclusion of smaller economic agents in the economy.

If the system were more reliant on a banking system in isolation then the chances of the corrupt sale of assets at inappropriate prices may have been heightened. This paper then, does not simply argue for a capital market in preference to a banking system but a symbiotic functioning of the two.

3.2. EMPIRICAL METHODOLOGY AND DATA

Several aspects of market quality are analysed both independently and via cross-section across the two markets. As the primary transaction cost measure the effective spread is used. This measure shows how far from the mid-point of the spread trade execution occurs. The effective spread is weighted by the trade volume of each trade. This is to give greater emphasis to the feature that this measure estimates: how costly it is to execute larger trades (based on both actual paid transaction costs and market impact costs).

The trade volume-weighted relative effective spread is:

$$2 \sum_{t_o}^{t_c} \left\{ \frac{ABS \left[Trade Price - \left\{ \frac{Ask_t + Bid_t}{2} \right\} \right]}{\left\{ \frac{Ask_t + Bid_t}{2} \right\}} \frac{[Trade Vol]}{Total Trade Vol} \right\} \quad (1)$$

where, t_o is the time when regular trading commences during a trading day following an opening algorithm, t is time when a trade is executed, t_c is the time when trading ceases for the day, and trade volume refers to the number of shares traded. The effective spread is doubled to account for the round-trip cost of transacting. A smaller spread indicates lower transaction costs. Six components of transaction costs can be identified: brokerage fees, bid-ask spreads, market impact, exchange fees and taxes (stamp duty), and the opportunity cost of an inability to make a desired trade due to transactions costs. Brokerage fees are excluded from the transaction cost measure as they may vary between customer and trade, and are largely determined by competition and not directly related to the quality of the market structure. The transaction cost measure, the trade volume weighted relative effective spread, includes the bid-ask spread, exchange fees and taxes and to some extent market impact costs.

As the price volatility measure a range-based intraday volatility, calculated as the log of the daily high price minus the log of the daily low price, is utilised (see Alizadeh, *et al.*, 2002):

$$\text{High-Low Intraday Volatility} = \ln(\text{high price}) - \ln(\text{low price}) \quad (2)$$

The range based volatility is well suited for measuring the quality of market structure as it measures the intra-day price volatility only, which is expected to be affected more by the market structure than measures including over-

night volatility. As the markets bearing scrutiny share the same design, the actual volatility technique used becomes subordinate to the comparison itself.

Trade size (the average dollar value of all trades during one day) is studied as a measure of the ability of the market structure to cope with large trades and the number of trades (total number of trades per day). This is, effectively, a measure of resistance of the trading system to bursts of high activity. The product of trade size and number of trades conveniently provides the traded value which, according to Swan and Westerholm (2005), is the ultimate source of income for the exchange and hence an important determinant of policy for profit-driven exchanges such as Euronext and the WSE.

The original data provided by Reuters to SIRCA (a financial services research organisation involving 26 universities in Australia and New Zealand) contains intra-day trade, quote, and volume information for all securities listed on the two exchanges. Consistent exchange-specific information was obtained from the International Federation of Stock Exchanges' *Annual Year Book* (various), the official Internet home pages of the exchanges, and the exchange rulebooks published by the relevant stock exchanges. Brokerage fees for institutional investors on an exchange-by-exchange basis were obtained from Chakravarty, *et al.*, (2004b). Reuters' intra-day trading and bid-ask spread data supplied by SIRCA is extracted for the period between the beginning of March 2000 and the end of October 2001. The period chosen for the study is one of high volatility in world markets. It includes the last month of the 1990s technology driven bull market. 178 common stocks for Euronext and 79 for the WSE are analysed as they exhibit the highest security value traded during the period at both the WSE and Euronext. Also obtained were Thomson Financial Datastream data on share numbers and stock splits for as many stocks as had data available.

Intra-day trade-by-trade prices, numbers of trades and average trade size expressed in dollars, best bid-ask quotes or orders (whichever is applicable, for all included stocks), and calculated comparable exchange rate adjusted measures using intra-day data, were obtained and presented as daily time series for each company. The series for the average value of each stock is expressed daily in USD. Transaction taxes and exchange fees, expressed as relative measures on a round-trip basis were added to the effective spread calculations based on equation (1) above. Exchange fees and taxes for the WSE and Euronext are sourced from an industry participant.

Each selection of stocks from the respective markets is broken into deciles to facilitate a detailed comparison. The stocks were initially ranked according to market capitalisation at the start of 2000 (in USD) with the foreign stocks traded on Euronext removed from the sample to leave only listed domestic stocks.

Like most high-frequency data, the samples tend to be non-normal in their distributional properties and thus require non-parametric econometric techniques when conducting tests of statistical significance.³ In particular, a Wilcoxon signed rank test is used to determine the statistical significance of the differences between the variables taken from each market (the data is effectively broken into daily results for the sample period and compared over time). This is conducted using a one-tailed hypothesis at the one per cent level. This means that the significance tests are not skewed by the choice of the normal distribution. Both the Euronext and WSE sample were then split into deciles from which comparisons were drawn. These results can be found in the following section.

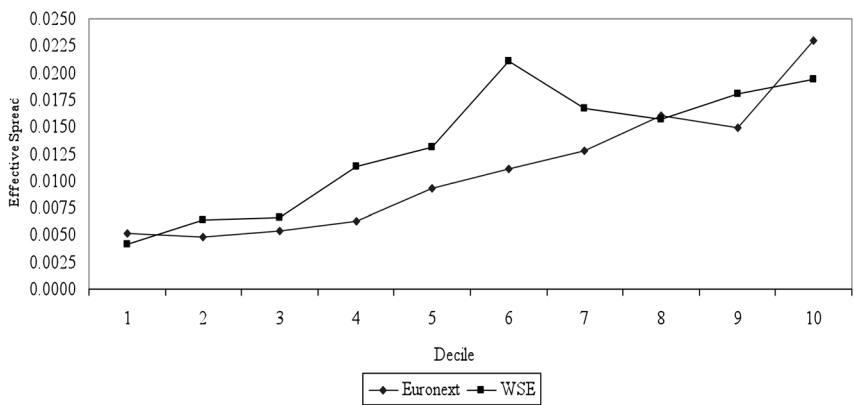
4. RESULTS

The hypothesis posed in this work actually relates to the degree to which the WSE lags Euronext in its development, and thus how rapidly a highly-developed capital market may be imposed in a transition economy, rather than whether or not one market or the other is actually in a more developed state. This means that a two-tailed significance test is used to determine the depth of each market by statistically comparing each corresponding decile from each market. This allows the researcher to gauge market quality in the form of volumes, spreads, and volatility at ten different market depths. Overall, the Euronext market clearly outperforms the WSE in virtually all of the variables tested. In particular, it can be seen in Table 1 that Euronext has much lower transaction costs and higher trade numbers across all deciles; both in amount and trade size. On the other hand, the WSE appears to attract lower market-wide volatility than the fully developed Euronext. The focus here is on four variables that should describe the merits of the liquidity of each market and allow for quick comparison. Transaction costs, as measured by the effective spread and augmented with institutional brokerage fees, tax, and stamp duties, is considered the best measure of the costs facing an investor making a deal. Trade size and the 'number of trades' data indicate the depth and frequency of trading and thus provide insights into another aspect of the liquidity of the market. Finally, the range based volatility measure, as opposed to the standard deviation of variance of the market makes sense of the possible risks of return facing an investor. Both the mean and the median are presented to give some indication of the distributions for each variable. This lends further credence to the use of non-parametric statistics due the skewness and leptokurtosis present in most of the data (an appendix with more detailed descriptions of the data is available upon request). Figure 1 shows the effective spread of each decile for both the WSE and Euronext. The ex-

³ All econometrics used in this research, for each of the variables and across all ten deciles for both markets, are available from the corresponding author upon request.

pected outcome would be that the effective bid-ask spread would in all cases be lower for the French market than the ‘newly’ formed WSE. However, it is evident that the WSE outperforms the Euronext market in the first and tenth deciles (although it must be admitted that this is only a minor advantage), and compares favourably in the eighth decile. In all other deciles the WSE exhibits higher transaction costs. In particular, Euronext is particularly ‘cheap’ in the second *Marché*, or alternatively from deciles four through to seven. This is consistent with much of the literature, which suggests that in a transition market such as the WSE there will be concentration in trading for only a few companies at the expense of less liquid assets.

FIGURE 1. – WSE and Euronext mean transaction costs across deciles



The Wilcoxon signed rank test (available from the corresponding author upon request) shows how many times the Euronext metric (in this case transaction costs as documented by the effective spread) are either greater than, less than, or equal to the WSE. All deciles show that the WSE has higher effective spreads in the vast majority of cases. Wilcoxon signed rank tests show that at the one per cent level the difference between the WSE and Euronext is significant for all deciles.

TABLE 1. – Statistical differences between WSE and Euronext across deciles (Wilcoxon signed rank test)

	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
	WSE v ENX	WSE v ENX	WSE v ENX	WSE v ENX	WSE v ENX	WSE v ENX	WSE v ENX	WSE v ENX	WSE v ENX	WSE v ENX
Transaction Costs	-12.49	-12.75	-12.72	-12.72	-12.71	-12.72	-12.72	-11.89	-12.30	-10.55
Number of Trades	-12.97	-12.97	-12.95	-12.95	-12.95	-12.95	-12.97	-12.97	-12.95	-12.95
Average Trade Size	-12.98	-12.98	-12.95	-12.95	-12.95	-12.95	-12.98	-12.98	-12.95	-12.95
Range Based Volatility	-12.29	-12.97	-12.95	-12.95	-12.95	-12.95	-12.98	-12.98	-12.73	-12.95

Using both a one-tailed and two tailed test it is apparent that Euronext is a much cheaper market to trade in. Therefore, transaction costs are significantly lower for all deciles using the non-parametric tests. These tests use the median as a measurement rather than the mean due to the skewness and leptokurtosis of the data. That is why, even though the mean transaction costs are lower for the WSE at deciles one and ten, they are significantly higher using the median. However, given that the mean is lower at certain points it is worth investigating the reasons behind this. Kairys et al (2000) suggest that the introduction of continuous trading in 1999 led to enhanced market quality for the most liquid stocks at all of the Poland, Latvia and Lithuania stock exchanges. The data presented here confirms these results as the mean of transaction costs for the WSE is lower than the fully developed economy's effective spread.

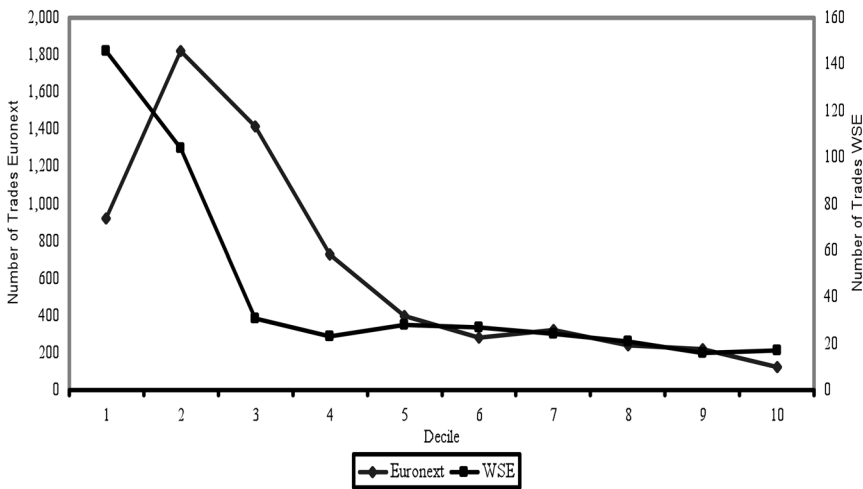
Poland, being a transition economy, and at a much earlier stage of its economic development (at least chronologically), has much lower trade volumes than Euronext. While the average number of trades is not the best measure of liquidity it does provide an insight into the mechanics of a market. As the relevant Y-axis show in Figure 2, the WSE clearly trades far more infrequently than Euronext. Even at the lowest deciles the number of trades in Euronext exceeds the WSE by a factor of 10. Interestingly, this ratio remains constant across the decile range indicating that the relative liquidity/depth of each market is similar. This supports the Wilcoxon signed rank tests that were conducted at both 99 per cent and 95 per cent significance levels. The WSE exhibited its highest turnover in decile one and then falls by around 28 per cent in the second decile and an even greater 49 per cent in the third. From then on trade numbers tend to stagnate and thus reveal the fact that the first two deciles account for the majority of trading at the WSE. Euronext follows the orthodox in at least one way as a developed western market. At least three deciles, or arguably four, make up relatively large trade numbers in comparison to the total. This indicates much greater depth than that of the WSE. Interestingly though the unorthodox also prevails in Euronext. The first decile is 97 per cent smaller than the second indicating that the trade numbers are small. Following this, in order to be consistent with the market capitalisation rankings, the average price of the shares would have to be very high. Again, from decile five though, similar relative trading is obvious. The magnitude of the two scales of trading at each market is reinforced through the signed rank test. In only four trading days did the WSE have higher average trading amounts and these were only in four deciles. The Euronext market clearly dominates in the average trade size metric over the WSE.

All of this data indicates that the WSE must increase its liquidity in order to enhance its chances of competing with developed economies stock markets in attracting direct foreign investment. Levine (1991) and Smith, Starr, and Bencivenga (1995) argue that long-term growth prospects are dependent upon liquidity in a stock market and the minimisation of certain risks that this

feature provides. Also, the minimisation of asymmetric information will be induced by increasing liquidity flows through the number of trades. As mentioned earlier, and as Kairys (2000) suggested, the use of continuous trading facility at the WSE has increased liquidity at the top of the trading scale but may be detrimental to the lower end. As the WSE has only a few of the former, it may wish to increase lower decile trading liquidity, as expressed by the amount of trades, by either lowering transaction costs in the lower deciles (reducing either brokerage fees or stamp duties) or re-introducing the single call auction as suggested by Kairys (2000). The signed rank test is supported strongly by the Wilcoxon significance test that show significance at the one per cent level using both one and two-tailed testing. Not only is this significant, but the z-score of nearly 13 indicates that there is no question of this significance, as does the asymptotic significance levels much lower than either 0.01 or 0.05.

Figure 2 presents the interesting case where the average trade number for the first decile at Euronext is less than the same relative decile in the WSE. The average number of trades per day per stock is about 1,000 for the largest and 1,900 for the second largest quintile in Euronext falling to around 200 for the smaller shares.

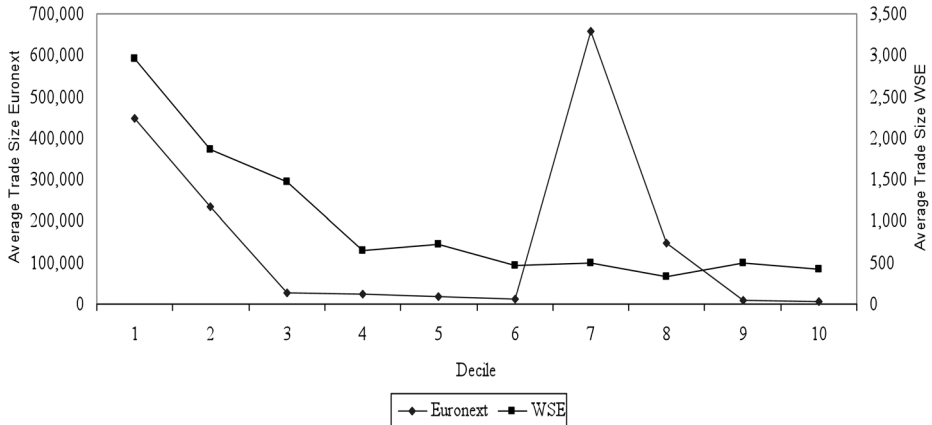
FIGURE 2. – WSE and Euronext average number of trades



In Warsaw the average number of trades is about 150 for the largest quintile and less than 50 trades for quintiles three and above. The difference in number of trades between the largest and second largest quintiles in Euronext indicated that the average trade value would have to be very high in decile one in Euronext. This is the case as Figure 3 reports average trade size. Being 49 per cent larger than the second decile shows that average trade value for decile one is in fact orthodox. This also indicates that large block trades exist in Euronext while the WSE supports (at least in decile one) relatively more

frequent smaller trading lots.⁴ Again, the shape of each curve indicates this. (In Figure 3 the scale for Euronext on the left y-axis is five to one compared to Warsaw on the right y-axis).

FIGURE 3. – WSE and Euronext average trade size



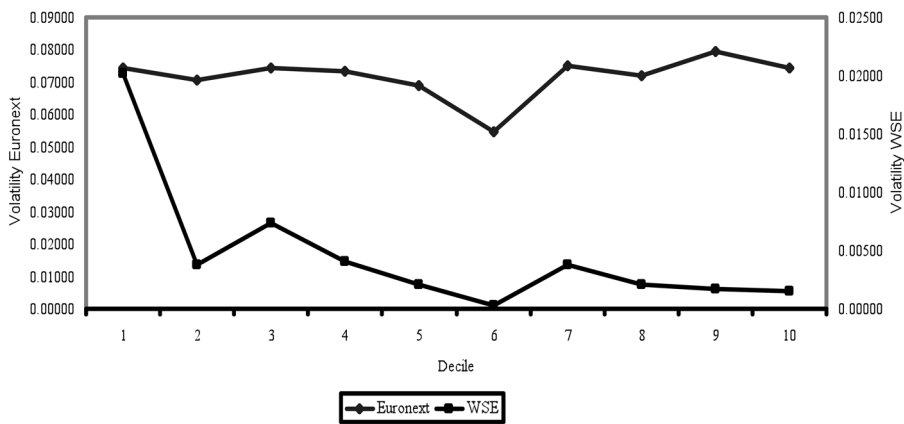
By analysing trade size differences the depth in the Euronext market can be shown to exceed Warsaw by a ratio of around 28:1 in all deciles. (The scale for Euronext is five times higher than the scale for Warsaw in Figure 3.) A relative magnitude of this strength obviously means that the WSE will always rank below Euronext in average trade size. Liquidity under this guise allows the researcher to both positively and normatively state that the WSE is a far smaller market. Applicable to the liquidity results presented thus far is the work of Amihud, Mendelson and Lauterbach (1997) who showed that when the Tel Aviv Stock Exchange introduced continuous trading (as the WSE had done prior to the sample date reported here), liquidity increased but only in the top-end stocks. In statistical significance terms the same story is true for average trade size as it was for the average number of trades. At the one per cent level the WSE is significantly smaller than Euronext. This is true for all deciles. Interestingly in this case, the WSE exhibits stronger relative depth across the first five deciles in comparison to Euronext. The percentage fall from decile one to five is much smaller than the Euronext decline. This is contrary to the number of trades data where Euronext showed greater signs of depth than the WSE.

While liquidity is a major determinant of market quality so too is the volatility that an investor faces. This paper uses an intra-day range based volatility measure summarized on a daily level in accordance with Alizadeh, Brandt and Diebold (2002). Volatility is often associated with limited liquidity as

⁴ The data used in this paper only includes on market trades reported through the Reuters database. It therefore, excludes off-market trades and indeed upstairs market trades.

the price will only be impacted upon by information infrequently. Volatility may also be subject to information flows in a liquid stock but will exhibit less dramatic and discrete effects. Kairys (2000) asserted that the introduction of continuous trading at the WSE and two other transition economy stock exchanges led to greater liquidity in the most liquid stocks at the possible expense of the less liquid stocks. He therefore, suggested that a transition economy's stock market should have a tiered system where the lower liquid stocks are actually priced off a daily single call auction. His treatment of volatility though was limited. Figure 4, a representation of the volatility for each market across all deciles is quite clear. Each market can be compared against the other and to itself among each of the deciles. Euronext is reasonably static across the decile range except for decile six. Typically, range-based volatility varies between seven and eight per cent. The WSE on the other hand shows much smaller absolute variance in daily price changes. This is more than likely due to the smaller average number of trades and trade size in comparison to Euronext. The use of continuous trading at the WSE as opposed to the single call auctions used in other emerging stock markets in the former communist nations of Central Europe has also contributed to lower liquidity on WSE. Also evident, is the fact that the more liquid first decile experiences almost twice the volatility as the less liquid deciles. This is contrary to the theoretical work of Hermes and Hermes and Lensink (2000), and indicates that volatility is not a problem in the investigated transition economy; rather it is a lack of volatility. Volatility is a sign of activity due the process where information is continuously impounded into traded prices. Outside of the liquid top decile there is very little activity on Warsaw and hence volatility is also low. Durnev, Li, Mørk and Yeung (2004) describe a relation between volatility and firm-specific announcement activity. Given that the WSE enforces public disclosure, the idea that low volatility is a function of limited information flows can be discounted.

FIGURE 4. – WSE and Euronext range based daily volatility across deciles



By having financial market data available daily the detection of corruption may be made simpler. If regulators are to favour the use of the banking sector in the process of economic development then these may be insensitive infrequent data reporting. In turn this will lead to lower economic growth and prosperity.

5. CONCLUSION

This study has compared the market microstructure properties of the WSE with that of Euronext, the market on which it is based. To provide a method for our comparison the differences in four measures of market quality in the two markets were investigated. These are the trade volume-weighted relative effective spread, range-based intraday volatility, trade size, and traded value. Our results show that in most areas of market quality, the relatively recently introduced stock exchange in our transition economy, Poland, is still inferior to that of our high-income industrialised economy, France. Not surprisingly, in the high-income industrialised economy liquidity is significantly higher when represented by trading volumes, average trade size and trade value.

Our results allow us to make the normative statement that the emerging stock market of the Polish transition economy is still at a stage equal to that of many other emerging stock markets. Even though the Polish economy has grown strongly since 'independence' in 1989 it still requires further development. Statements of this nature are often made but not substantiated. In our natural experiment, both markets have used the same trading platform. However, each produces a different investment universe where investors face different outcomes in the form of return levels and variance. Even if the same systematic information were to flow simultaneously between these markets an investor at the WSE may suffer from a lack of liquidity. Also, as transaction costs are nearly always higher in the WSE than in the Euronext, investors may simply be shunning the market. This is apparent when analysing the volume of trade in each market.

An interesting result is that the WSE exhibits much lower volatility than Euronext. The low volatility is clearly a side effect of lower trading activity on the WSE than Euronext. However, since some of the highest capitalisation stocks on the WSE exhibit lower transaction costs than relatively similarly sized companies on Euronext, the WSE may provide an interesting alternative for foreign investors that seek to add liquid, low-risk stocks to their portfolios.

Polish policy makers need to analyse these data and attempt to attract not only domestic investment but also foreign investment and listings. Euronext provides a successful example of this practice, with some of the largest and most active companies being large European and US companies that trade on Euronext simultaneously with their home markets. These foreign compa-

nies are excluded from our analysis since even if their market capitalization is great, only a fraction of the interest in these stocks is in France. A strong argument for the potential competitiveness of the WSE is present in the earlier observation that the highest capitalisation stocks on the WSE exhibit lower transaction costs and volatility than similarly sized companies on Euronext. By following the Euronext model in the area of foreign investment and listings, the WSE may be able to attract companies from neighbouring emerging stock markets. This would increase its market quality by adding to its liquidity, improving its observed performance by adding to trading volumes, average trade size and trade value in total.

From the above it is reasonable suggest that the policy of inorganically superimposing a stock market onto the Polish economy has been both a positive step and a qualified success. If during the transition, it was decided to only promote the banking system the information symmetries generated by the stock market would not have flowed through to the rest of the economy. It signals to other emerging markets/transition economies that may be possible to successfully introduce a relatively efficient capital market institution into their economies, one that is modelled on a suitable developed market, rather than taking a more extended time to organically grow an institution unique to their own economy.

The reporting requirements of the WSE also mean that information is relatively symmetrical across economic agents when compared to a financial system dominated by the banking sector. Having the press associated with the listing requirements of the markets has also facilitated the cheap transmission of information to a broad spectrum of society. Each of these features also provides policy makers with an important lesson regarding the need to promote more efficient flows of information. By fostering the stock market approach to economic development better informed smaller investors can access diversified revenue streams in small tranches. This is likely to be particularly important in the transition economies, such as Poland, where once nationalised industries were privatised. Based on this small private investors may have more confidence in participating individually in their own economy, and through this confidence provide the minimal yet important capital requirements that will enable the entrepreneurial finance associated with economic development to be sourced.

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DOES PREDICTED MACROECONOMIC VOLATILITY INFLUENCE STOCK MARKET VOLATILITY? EVIDENCE FROM THE BANGLADESH CAPITAL MARKET

ABSTRACT

According to the Capital Asset Pricing Model, market return on a broad-based market index should be related to the risk associated with the macroeconomic health of the economy, as the latter affects an individual firm's cash flows and the systematic risk component. Therefore, the overall performance of a firm, in terms of its contribution to the market portfolio's return, can be evaluated based on macroeconomic variables like GDP growth, inflation, etc.

In this paper, the main objective is to examine how macroeconomic risk associated with industrial production, inflation, and the exchange rate is reflected in Bangladesh's stock market return. Monthly data for the January 1990 to December 2004 period is used. As many macroeconomic variables and stock returns are believed to follow a GARCH (Generalized Autoregressive Conditional Heteroskedasticity) process, this modelling technique is used to find the predicted volatility of the variables considered in the study. Finally, VAR (vector auto-regression) is employed to investigate the relationships between variables.

Our results show that there is significant unidirectional causality from industrial production volatility to market return volatility and from market return volatility to inflation volatility. That the latter is inconsistent with standard finance theory warrants further study reconfirming the result in other emerging markets.

JEL Classification Numbers: E3, G1, N1

Key Words: Bangladesh, stock market return, macroeconomic risk, GARCH process, VAR modelling

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1. INTRODUCTION

As far as a risk-averse investor is concerned, uncertainty is the most important factor in financial asset pricing. According to most theories of asset pricing uncertainty, or risk, is determined by the covariance between returns on an asset and those on the market portfolio. Although it has been recognized for some time that the uncertainty of speculative prices, as measured by the variances and covariances, is changing through time, it was not until

recently that financial economists started explicitly modelling time variation in second- or higher- order moments. However, further evidence is still required from emerging markets like that of the Dhaka Stock Exchange (DSE) in Bangladesh.

Chowdhury and Rahman (2004) have studied the relationship between the predicted volatility of DSE returns and that of selected macroeconomic variables for the Bangladesh economy. The methodology of Schwert (1989; 1990) is used in the study to calculate the predicted volatility of the variables, and is based on errors after using an autoregressive and seasonality adjusted forecasting model. The volatility series derived from such a process has limitations. For example, empirical research has found evidence that large changes in stock prices are followed by small changes of either sign. This has been corrected for in the Generalized Conditional Autoregressive Heteroskedasticity (GARCH) models developed by Bollerslev (1986). Therefore GARCH models, which take into account the volatility-clustering phenomenon in security prices, are more suitable for modelling volatility in financial assets and macroeconomics (e.g., exchange rates, industrial production, inflation, etc.).

In the context of the present value model of asset pricing, the stock price depends on future cash flows as well as on discount rates. Since future macroeconomic conditions obviously impact on the future cash flows of a firm, this surely adds to the volatility of stock return when there is uncertainty about the future health of the economy. In this study we try to establish the relationship between the volatility of stock returns and that of selected macroeconomic variables. Considering the nature of financial assets and macroeconomic variables, we use GARCH (1,1) models to estimate the predicted volatility of asset returns and the other variables (industrial production, exchange rate, and inflation) used in the study. Since there is a strong link between the macroeconomic health of the economy and stock market returns, any shock to the macro economy must impact stock market returns. Any shock to macroeconomic variables is a major source of systematic risk and even a well-diversified market portfolio like the stock market index cannot diversify against such risk.

After calculating the predicted volatility series, we perform Granger causality tests to account for delayed responses from shocks to any of the variables. Finally all the variables are considered in a vector auto-regression (VAR) framework to see more precisely how any shock to one of the variables is transmitted to others within a dynamic framework.

This paper is organized as follows. The next section discusses notable findings from the research on the risk-return relationship in the context of the DSE and developed markets. Section 3 details how the data were collected and then processed to obtain the volatility series and the methodologies used in the study. Section 4 analyzes the empirical results of the econometric

models. Section 5 concludes the paper with a synthesis of results, policy implications, and possible remedial measures to develop the market.

2. EMPIRICAL EVIDENCE OF THE RISK-RETURN RELATIONSHIP

Many researchers have studied stock market volatility in the context of developed markets. Examples of this research include papers by Officer (1973), Black (1976), Christie (1982), French, *et al.* (1987), and Schwert (1989, 1990).

Officer (1973) identifies several features of aggregate stock volatility. First, that aggregate stock volatility increased during the Great Depression, as did the volatility of money growth and industrial production. Second, stock volatility was at similar levels before and after the depression. Schwert (1990) also finds that the market volatility changes over time, with an analysis of the behaviour of stock return volatility around stock market crashes. Stock market volatility jumps dramatically during the crash and returns to low pre-crash levels quickly.

Black (1976) and Christie (1982) find that stock market volatility can partially be explained by financial leverage. However, in contrast to expectations based on theory, French, *et al.* (1987) fail to find a direct positive relationship between expected return and volatility. Schwert (1989) also fails to explain much of the change in market volatility over time using macroeconomic variables.¹

Despite the significance of volatility in portfolio decision-making, little research has so far been done regarding how investors show their attitudes toward risk in the Bangladeshi capital market. Rather, much of the available material focuses on identifying the structure and sources of the volatility itself.

Chowdhury (1994) investigates the time series behaviour of returns in the DSE using an EGARCH-M (exponential GARCH in-the-mean) model. The return series is found to be conditional heteroskedastic, and both the first and second moments of the returns are time-dependent. As the conditional variances of the return series depend upon past volatility shocks they are predictable using past information. The significance of the asymmetry coefficient suggests that positive return shocks in the market lead to higher increases in conditional volatility. In a later study Imam and Amin (2004) find that the volatility of Bangladesh's stock returns follows a GARCH (1,1) process and there is persistence in volatility. Additionally, the conditional volatility after the crash of 1996 is mean reverting. These findings suggest that current information has no effect on long-run forecasts. Rather, volatility shocks

¹ French, *et al.* (1987) and Schwert (1989) measure market volatility as the variance of monthly returns of the market index.

(random errors) to the volatility estimated at an earlier period are of more influence in estimating current volatility.

The results of Chowdhury (1994) and Imam and Amin (2004) bring into question the efficiency of the Bangladeshi market. Chowdhury and Iqbal (2005) also find variance to be predictable from information on past variance, and also that DSE returns have high volatility persistence and tend to go away from the mean infinitely. However, when data from a few months before and after the crash of 1996 are omitted, volatility persistence is reduced and a tendency to return to mean volatility after departure is observed.

Hassan, *et al.* (2000) empirically examine market efficiency and the time-varying risk-return relationship for Bangladesh's DSE also using GARCH models. DSE returns display significant serial correlation, implying stock market inefficiency. The results also identify a significant relationship between conditional volatility and the stock returns. However, the significant risk-return relationship is negative, a result inconsistent with portfolio theory. Instead of using traditional measures of volatility derived from index returns, Chowdhury, *et al.* (2005) use firm-level return data to measure cross-sectional market volatility. They find that there is weak relationship between risk and return and shocks to return, and volatility stays in the system for a long period of time indicating inefficiency of the DSE. Chowdhury and Iqbal (2005) Investors do not differentiate between positive and negative shocks to volatility. The most important but not surprising finding is that the market does not add a risk premium for risk takers since the risk-return relationship is found to be insignificant.

Hassan and Maroney (2004) examine efficiency of the DSE by giving due consideration to some stylized facets of the market. These include non-linearity, thin trading, and structural change. They find non-linearity after correcting for thin-trading in some of the years under study. However, due to parameter instability, the ability to undertake profitable trading strategies is highly limited.

Finally, Chowdhury and Rahman (2004) investigate how the predicted volatility of macroeconomic variables is related to that of stock returns in Bangladesh. Vector auto-regression (VAR) is used to identify the relationship. Their findings are that macroeconomic volatility strongly causes stock market volatility, but not the other way around. Moreover, any shock to macroeconomic volatility takes a long time to be absorbed into stock prices.

3. DATA AND METHODOLOGY

The monthly composite DSE index, industrial production index, foreign exchange rate and consumer price index for the period January 1990 through December 2004 have been considered in this study. Stock market index data are collected from the Dhaka Stock Exchange Monthly Reviews. Industrial

production index and exchange rate data are collected from the IFS (International Financial Statistics). Consumer price index data are collected from the Economic Trend published by Bangladesh Bank, the central bank of Bangladesh.

Market return, inflation, and rate of change in industrial production and the exchange rate are calculated using the log differences of the respective variables between time ' t ' and ' $t-1$ ' multiplied by hundred. In order to find the volatility series of these variables, we apply an AR(1)-GARCH(1,1) process to each of the variables. An AR(1)-GARCH(1,1) process can be shown as given below.

$$y_t = \mu + \phi_1 y_{t-1} + u_t \quad (1)$$

$$\sigma_t^2 = \alpha_0 + \alpha_1 u_{t-1}^2 + \beta_1 \sigma_{t-1}^2 \quad (1a)$$

y_t is the conditional mean of the variable, σ_t^2 is the conditional variance of the variable and u_t is the error term. σ_t^2 gives us the predicted volatility of all the variables used in the study.

We first apply a Granger causality test to find the existence and direction of any relationships between variables. If the total economy is integrated, then the predicted volatility of any of variable should affect the others. In such a situation VAR is thought to be an effective tool for capturing the relationship between all the variables in a dynamic setting, since all the variables are considered simultaneously. Therefore we use the Granger causality test and the VAR for the analysis. A VAR can be expressed mathematically as follows.

σ_{t-1} , t is the volatility of each of the variables from $t-1$ to t , and g is the order of the VAR. Since the frequency of data is monthly, we arbitrarily employed a VAR of order 12.

$$X_t = A_0 + \sum_{i=1}^g A_i X_{t-i} + \varepsilon_t, \quad (2)$$

$$X_t = \begin{bmatrix} \sigma_{1t-1,j} \\ \vdots \\ \sigma_{4t-1,j} \end{bmatrix}$$

4. ANALYSIS OF EMPIRICAL FINDINGS

Table1 presents the summary statistics of variances (volatility) of all the variables used in the study. The mean variance of the market return and industrial production is very high compared to that of inflation and the exchange rate. Market return variance has a high mean and very high standard deviation, a phenomenon, which is completely different from the other variables. The results give important information about the Bangladesh capital market; that it is much more volatile than the economy as reflected in changes in major macroeconomic variables.

TABLE 1. – Descriptive Statistics of Volatility for Macroeconomic Variables

	Market Return	Industrial Production	Inflation Rate	Foreign Ex- change Rate
Mean	68.5925	60.9051	0.5378	1.0942
Median	32.9030	59.3270	0.4320	1.1114
Maximum	975.9670	85.9752	1.8549	4.0730
Minimum	15.9661	55.1952	0.2975	0.0000
Stan. Dev.	117.3896	5.5083	0.3001	0.2751
Skewness	4.9632	2.1946	2.2777	6.6880
Kurtosis	31.8631	8.7811	8.4821	81.3724
Observation	178	178	178	178

Table 2 gives pair-wise Granger causality test results. Since there are four variables, we have 12 different causal relationships. Our results support the presence of significant unidirectional causality going from industrial production volatility to market return volatility and from market return volatility to inflation volatility.

TABLE 2. – Pairwise Granger Causality Tests (12-month lag) on Volatility

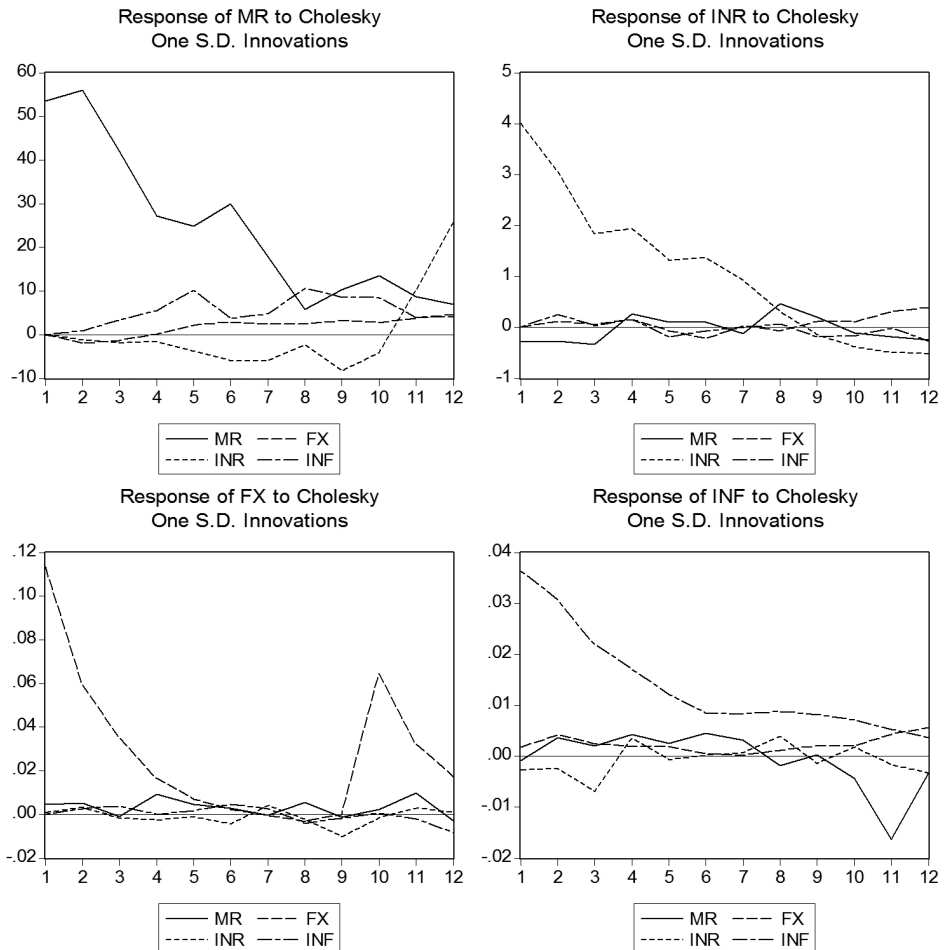
Null Hypothesis:	Obs.	F-Statistic	Probability
Industrial Production does not Granger Cause Market Returns.	166	1.9358*	0.0348
Market Returns do not Granger Cause Industrial Production.		0.8827	0.5659
Foreign Exchange Rate does not Granger Cause Market Returns.	166	0.0815	0.9999
Market Returns do not Granger Cause Foreign Exchange Rate.		0.2373	0.9960
Inflation Rate does not Granger Cause Market Returns.	166	1.4638	0.1446
Market Returns do not Granger Cause Inflation Rate.		10.1825*	0.0000
Foreign Exchange Rate does not Granger Cause Industrial Production.	166	0.2802	0.9915
Industrial Production does not Granger Cause Foreign Exchange Rate.		0.2088	0.9978
Inflation Rate does not Granger Cause Industrial Production.	166	0.3908	0.9650
Industrial Production does not Granger Cause Inflation Rate.		1.1221	0.3469
Inflation Rate does not Granger Cause Foreign Exchange Rate.	166	0.4052	0.9596
Foreign Exchange Rate does not Granger Cause Inflation Rate.		0.1158	0.9998

* indicates significance at 5% level.

The industrial production volatility to market return volatility relationship is logical, although financial economists generally believe that stock market volatility should precede industrial production volatility. This is because there are many qualified analysts who follow the stock market, including on daily basis. However, in the absence of a sufficiently large number of institutional investors and qualified security analysts in the market, the market may be inefficiently analysed. In this case incorrect prediction may be reflected in causality running from industrial production to market return.

On the other hand, it is less easy to conceive that market volatility Granger-causes inflation volatility in Bangladesh, the second significant finding. While easy to justify in a developed market where skilled investors dominate, in a frontier market like Bangladesh causality in the opposite direction

FIGURE 1. – Impulse Response Functions for Volatilities



MR = Market Return Volatility; FX = Exchange Rate Volatility; INR = Industrial Production Volatility; INF = Inflation Rate Volatility.

would be expected. This is mainly due to the dominance of non-institutional investors, information asymmetries between investors, and the scope for market manipulation. Theoretically there should be a positive relationship between inflation uncertainty and stock return volatility, which should ultimately increase expected returns and decrease stock prices. However, a limitation of the Granger causality test is that it does not provide the sign of the relationship, which is also very important in order to have a clear perception of the direction of significant relationships.

Impulse response graphs are shown in Figure 1. All the volatility series are basically sensitive to their own shock.² Variance series are usually thought to be persistent, and this phenomenon is quite evident in the impulse response graphs. One important feature of the impulse responses is that shocks to any of the variables stay in the system for a very long period of time and do not tend to die away even after 12 months. We have already found market volatility granger-causes inflation volatility. In this connection, the first (top-left) of the graphs confirms that any shock to the error-term of market volatility causes a positive shock to inflation uncertainty (volatility). The top-right graph shows that any shock to industrial production volatility does not affect market volatility in a systematic manner. Therefore, the sign of the relationship between industrial volatility and market volatility is not clear.

5. CONCLUSION

This paper has investigated how predicted macroeconomic volatility is related to predicted stock market volatility in Bangladesh. Since macroeconomic volatility is a source of systematic risk, it should increase the volatility of stock market and the risk-adjusted expected rate of return. GARCH(1,1) models were used to find the predicted volatility of all variables in the study. VAR was then used to capture the relation between the variables in a dynamic framework.

The results show that the relationship between stock market returns and macroeconomic variables is not strong. Our results indicate that industrial production volatility Granger-causes stock market volatility and stock market volatility Granger-causes inflation uncertainty (volatility). The later result contradicts theoretical predictions on causality in an efficient and complete capital market. However, this reverse direction may reflect investors' reactions in the absence of a sufficiently large number of investors and analysts in the Bangladeshi capital market. The dearth of qualified analysts and institutional investors is a well-known fact in emerging markets like that of Bangladesh. However, this finding needs to be re-examined to be sure of the cause of reverse causality issue.

² This finding is also supported by a variance decomposition test, which is not reported in the paper.

The lack of existence of a relationship between stock market and exchange rate fluctuations can be more readily explained. A fixed exchange rate regime was followed throughout most of the period under study, with the exception of the last couple of years. This is when the country moved towards a flexible exchange rate regime. The impulse response functions show that market return is basically influenced by its own shock. Moreover, any shock to market return volatility does not affect other factors that much. More generally, all the volatility series are mainly sensitive to their own shock and almost insensitive to shocks to other variables. Finally, volatility shocks to every variable seem to be very persistent and take very long period of time to die away.

The findings of this study differ slightly from those of Chowdhury and Rahman (2004). They found that the predicted volatility of macroeconomic variables is related to that of stock returns in the Bangladeshi capital market, with causality running from macroeconomic volatility toward stock market volatility. However, they used different volatility series and macroeconomic variables with a different time frame. Since an improved model is used to calculate the predicted volatility series in this study, its findings are more acceptable compared to the previous one.

However, one must be cautious in using these findings in policy making. Further research confirming results in similar countries may provide for a deeper understanding of the relationship between these variables in emerging markets.

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