

# “Funding Working Capital Requirements. An Emerging Markets Perspective”

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## Funding Working Capital Requirements An Emerging Markets Perspective

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### Abstract

An important issue international firms must face is the evaluation and control of working capital investment. Many studies dealing with working capital management have focused on the practices used by multinational enterprises in developed markets. In this study we analyze the working capital decisions taken by firms from an emerging markets perspective. Due to their characteristics, emerging economies present unique challenges to managers. We examine the funding working capital requirements including inter-company and external sources of financing used to meet working capital requirements. General Motors' Polish operations highlight several important funding issues associated with emerging market operations.

### Introduction

The emerging markets in Central and Eastern Europe (CEE) have developed rapidly over the last several years (Clark, 2003). The task of creating a market-oriented economy was addressed through both the establishment of new businesses and the privatization of state-owned firms. The creation of market-oriented enterprises and of the institutional framework of a functioning market economy has been a major task facing governments in the countries of CEE. The radical transitional reforms of ex-communist countries' economies provide unprecedented challenges not only for those countries' residents and policy makers, but also for the international community involved in financing and monitoring the region's economic and financial progress.

In 2004, Hungary, the Czech and Slovak Republics, and Poland, enjoy a relatively high degree of political and economic stability as compared to other countries undergoing the post-communist transition. Each is increasingly adopting European Union (EU) norms regarding commercial and economic legislation in conformity with EU Association Accords. The member states of the European Union and the candidates for membership agreed in Copenhagen on December 13, 2002, on a package for the admission of ten new member states to the Union. The accession treaty was signed in Athens on April 16, 2003, and these new member states will join the EU on May 1, 2004, once the accession treaty is ratified<sup>4</sup>.

The Western interest in these markets is also evident from the rapidly growing presence of foreign banks, investment firms, and international companies. The growth potential of these markets, especially Poland's, is bolstered by the expected performance of their economies, the fastest-growing economies of Europe. Yet, challenges remain. For some years now, firms in emerging markets have been finding it increasingly difficult to procure working capital. This is due to a continual draining the finances by banks – the main financing agencies for providing working capital – through the adoption of credit squeeze policies. These difficulties can potentially be further aggravated by several developments that sometimes take place in an economy (such as inflation and shortages) and have a bearing on a firm's working capital. Therefore, these firms must optimize the use of the resources at their disposal through the efficient management and funding working capital.

Working capital management is a critical element in enterprise creation and development. This study's importance is illustrated by the fact that how an enterprise administers its working

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<sup>4</sup> The countries currently involved in accession are Cyprus, Malta, Hungary, Poland, the Slovak Republic, Latvia, Lithuania, the Czech Republic and Slovenia. [http://europa.eu.int/comm/enlargement/negotiations/accession\\_process.htm](http://europa.eu.int/comm/enlargement/negotiations/accession_process.htm), accessed February 21, 2004.

capital and determines, to a very large extent, the success or failure of its overall operations. If a business concern fails, a shortage of working capital is often given as the main cause. But in the ultimate analysis, it may be mismanagement of the firm's resources that could have converted an otherwise successful business into an unsuccessful one. The proper management and funding of working capital is, therefore, of crucial importance for the success of an enterprise. This involves the administration and funding enterprise assets.

The information on the firms practice relating to the management of working capital funding in the emerging markets is largely lacking. In this context this study provides an analysis of the working capital decisions made in the CEE's emerging markets. It argues that due to their characteristics emerging economies present managers with unique challenges. Funding of working capital requirements is examined, by including inter-company and external sources of financing used to meet working capital requirements. An example of GM's Polish operations highlights several important funding issues associated with CEE emerging market operations. Information obtained from studying GM's Polish operations can easily be applied to the other regional economies.

### Literature Review

To date, the literature on international working capital practices is limited primarily to developed markets (Holden 1997) and the banks practices within these markets (Jacques and Nigro, 1997; Hancock and Wilcox, 1993). Gentry et al. (1979) argue that an important issue multinational enterprises (MNEs) face involves the working capital management policies used by their overseas operations. These policies should be constantly monitored and controlled, since the success of most corporations is closely linked to properly managing working capital. Additionally, working capital procedures are an important part of a firm's overall investment strategy and are directly influenced by foreign managers' decisions. Although the use of overseas funds is a common business practice, the task of establishing appropriate working capital policies for foreign corporations is not easily accomplished. This is because of differences in accounting practices, government regulations, foreign exchange rates, economic concerns, and political systems that exist abroad. As MNEs increase their understanding the working capital function, they should expect improvements in the management of their capital investments and become more competitive in the international financial markets (Gentry, 1979).

Several authors argue that the increased trading activities at many large banking companies have shown how banks' risk of loss from adverse movements in financial market rates and prices has increased (Kraus, 1999; Haubrich and Wachtel, 1993). For example, in the wake of a global financial crisis in emerging markets that started in Thailand in 1997, banks have come under increasing pressure. After the crisis spread across the Far East, then to Russia and Brazil, banks were blamed for helping to provoke the crisis by funneling reckless lending into emerging markets. This has prompted the International Monetary Fund and G-7 countries to propose controls on future global capital flows (Kraus, 1999).

In the context of this crisis, Ediz et al. (1998) argue that the most important step taken was developing formal capital requirements for market risk exposures arising from banks' trading activities. Hubbard and Waltz (1993) provide an overview of the capital requirements and the impact of the market risk capital requirements. The authors argue that banks have recognized the importance of trading operations and hence have sought ways to measure and to manage associated risks. At the same time, bank supervisors in the United States and abroad took steps to ensure that banks had adequate internal controls and capital resources to address these risks (Rochet, 1992).

Ediz et al. argue that banks behavior has been greatly influenced by capital requirements. Such requirements appear to cause banks to raise their capital to meet capital ratio targets, but capital requirements do not cause banks to shift their portfolios away from highly risk-weighted assets. In contrast, Kraus (1999) states that efforts to raise capital requirements on cross-border lending could reduce capital flows and increase borrowing costs in emerging markets. He argues that banks use internal risk models to determine how much capital should be set aside on such lending, and that any increase in capital requirements would give banks far less flexibility.

The article by Stevens (1986) discusses the inclusion of working capital requirements in the NPV model. Hawawini et al. (1986) reported working capital ratios for 36 industry groups to demonstrate differences in working capital intensity among industries. Pohlman et al. (1988) surveyed 232 companies from the 1985 Fortune 500 list. More than two-thirds of the respondents considered working capital requirements as highly important in estimating project cash flows. Among the 12 financial factors the authors listed for financial managers to rank, working capital requirements ranked third in importance in project cash flow estimation. Its importance ranked behind only tax considerations and the risk of the project. However, apart from an occasional reference in advanced financial literature, the integration of annual NWC requirements in capital budgeting, where NWC requirements are endogenous to the project, appears to be forgotten.

A number of papers have focused on working capital analysis using information obtained from various U.S. and foreign parent companies. However, there has been only limited research dealing with the working capital practices used by managers of affiliates operating in emerging markets (Gentry et al., 1979; Hubbard and Walz, 1993; Kolay, 1991; Soenen, 1986; and Srinivasan and Kim, 1986). Thus, in this study we extend the examination of working capital issues to developing nations and illustrate with a specific case – General Motor's Polish operation.

The rest of the paper is organized as follows. Section two provides an overview of funding working capital requirements. Section three analyzes the performance of selected financial markets. Section four presents several important working capital issues associated with GM's emerging market operations. Section five presents managerial issues and conclusions concerning funding working capital requirements in emerging economies.

### **Capital Policy Decisions and Funding Working Capital Requirements**

After a firm determines the requirements of current assets and components of working capital the important task the financial manager must decide how to finance the firm's assets. In an emerging economy, a business firm has diverse ways of meeting its financial requirements. In selecting a particular source, a financial manager has to consider the merits of each source and how they relate to the firm's individual constraints. In particular, the international working capital management function consists of many important capital policy decisions (Edmunds, 1984).

First, decisions must be taken regarding which kinds of bank credit should be used to finance short-term cash needs. There are numerous types of bank credit available for satisfying cash needs including term loans, overdrafts, discount loans, lines of credit, and bankers' acceptances.

Second, working capital decisions involve inter-company funds, which are used by corporations to satisfy financing requirements. There are many types of funds available that can be used to satisfy financing requirements. These include cash advances from parent firms, lags in paying accounts payable, borrowing with parent or affiliate guarantee, and borrowing with host government guarantee.

Finally, capital decisions should include a review of funds from sources external to the corporate unit. Sources of outside borrowing include foreign banks, money and capital markets, and Eurocurrency debt. The dramatic changes occurring in many overseas markets have forced multinational enterprises to reevaluate the working capital strategies used by their foreign operations (Kolay, 1991). As the percentage of total profits received from overseas operations increases, the financial management policies employed by foreign subsidiaries becomes more important.

Due to the complex nature of working capital requirements, financing these investments is an important managerial responsibility. Shao (1997) examined the financial management practices used by managers of foreign subsidiaries. A total of 188 foreign managers responded to a questionnaire designed to obtain information about the working capital practices of their operations. Tables 1-3 provide information obtained from a sample of foreign subsidiaries of U.S. MNEs in the manufacturing sector.<sup>1</sup>

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<sup>1</sup> See Shao (1997) for a further discussion of the capital structure practices of foreign subsidiaries.

***Inter-company Sources of Financing***

A common source of international funding are parent companies or sister subsidiaries. Working capital managers must determine which sources within the corporate family structure should be used. Financial theorists suggest that firms use the least costly source of internally generated funds to meet their financing needs (Lessard, 1979).

Table 1

Intercompany Sources of Financing

Source of Funds	Subsidiaries' Average
Cash Advances From Parent Firm	4.05 (3)
Lags in Paying Accounts Payable (Subsidiary to Parent)	4.06 (4)
Cash Advances From Sister Subsidiaries	3.78 (2)
Lags in Paying Accounts Payable (Subsidiary to Subsidiary)	4.32 (5)
Borrowing With Parent or Affiliate Guarantee	3.15 (1)
Borrowing With Host Government Guarantee	4.73 (6)

Note: Scale range is from 1 (most important) to 5 (least important). Enclosed in the parentheses is the rank of source used.

Table 1 shows the internal sources of funds used to satisfy financing needs. Shao's survey finds that foreign subsidiary managers use theoretically preferred internal sources of funds to meet cash demands. These managers' most important sources include borrowing with parent or affiliate guarantees and cash advances from sister subsidiaries. In contrast, lags in paying accounts payable and borrowing with host government guarantees were the least important internal source of funds used by foreign managers.

***External Sources of Funds Used to Satisfy Financing Needs***

Another important working capital policy decision involves determining which sources outside the corporate family structure foreign managers should employ. Financial theorists suggest that firms should use the most cost effective source of externally generated funds to meet their needs (Shapiro, 1996). Table 2 shows the external sources of funds used. The findings of Shao's survey show that foreign managers use theoretically preferred external sources of funds to meet cash demands. The most important sources used by managers include local banks and local money markets. In contrast, U.S. securities and money markets were the least important external source used to borrow funds.

Table 2

External Sources of Funds Used to Satisfy Financing Needs

Source of Funds	Subsidiaries'
U.S. Banks	3.95 (3)
U.S. Securities Market	4.80 (7)
U.S. Money Market	4.81 (8)
Local Banks	1.53 (1)
Local Securities Market	4.47 (4)
Local Money Market	3.68 (2)
Third-Country Currency Debt	4.77 (6)
Eurocurrency Debt	4.71 (5)

Note: The scale ranges from 1 (most important) to 5 (least important). Enclosed in the parentheses is the rank of source used.

Table 3 presents the sources of bank credit used by managers. Foreign subsidiary managers appear to use funding sources that are recommended by academicians. The sources used most frequently include overdrafts and lines of credit. The least preferred source of bank credit includes bankers' acceptances and discount loans.

Table 3

Bank Credit Used to Finance Short-term Cash Needs

Forms of Bank Credit	Subsidiaries' Average
Term Loans	3.51 (3)
Overdrafts	2.27 (1)
Discount Loans	4.20 (6)
Line of Credit	2.45 (2)
Revolving Credit Agreement	3.61 (4)
Bankers' Acceptances	3.97 (5)

Note: Scale range is from 1 (most important) to 5 (least important). Enclosed in the parentheses is the rank of source used.

Investing in short-term debt has several advantages. Risk is usually low because instruments are not dependent on changing interest rates (if issued as zero-coupon bonds) and default on debt is rare. Also, instruments issued by well-known corporations are usually very liquid. Finally, in volatile markets, investors can quickly adjust their positions to meet new business conditions. For corporations, short-term debt is beneficial if they need money quickly and for a short time period. It may also serve as a temporary investment vehicle, if conditions for a long-term borrowing are expected to change, or it is too risky to issue long-term debt.

## Financial Market Performance

Due to emerging markets' inherent volatility, their economies represent particular challenges to managers. To illustrate these challenges we examine the issues confronting managers in the Polish financial markets during the transition period from 1992 to 1997. After 1997 the Polish market stabilized and began reflecting the performance of a more mature emerging market. Our analysis focuses on this example period, since it clearly reflects the dynamics of an emerging national economy. The review of this period indicates the developmental issues and challenges inherent in an emerging currency. The issues of currency convertibility, access to capital, and volatility in the interest rate environment are evident in the Polish case and endemic to all emerging markets.

### *Foreign Exchange*

Efficient foreign exchange markets are critical to global business operations. Emerging market currencies often lack the stability and convertibility required in international commerce. Their lack of the tools or instruments for hedging foreign exchange risk represents particular challenges to corporate risk management. We use the Polish financial markets to illustrate these issues and gain insights from an emerging market's perspective.

Poland's exchange-rate system, like many others in the CEE region, has evolved throughout the 1990s. In the early 1990s, Poland's Central Bank (NBP) maintained a constant exchange rate of the PLZ to the US dollar. This fixed exchange rate was an anti-inflationary anchor in 1990, when the zloty was also made internally convertible, making foreign currency freely purchasable domestically for current transactions. With the inflation rate exceeding 100% in 1990, this policy led to dramatic real appreciation of domestic currency and declining competitiveness of exports. In order to regain competitiveness, the Central Bank devalued the PLZ in 1991. After several one-off devaluations, the NBP opted to preserve the competitiveness of Poland's manufacturing industry by adopting a more

flexible crawling-peg system, which came into force in October 1991. The PLZ was pegged to a currency basket reflecting the weight of the largest Polish trade partners and foreign investors. A central rate (the peg) was announced, with a permissible band for daily fluctuation, and the peg itself was adjusted each month to compensate for inflationary pressures.

In 1994 this basket consisted of the following currency weights: US Dollar – 45%, Deutsche Mark – 35%, Pound Sterling – 10%, French Franc – 5%, and Swiss Franc – 5%.<sup>1</sup> The crawling peg system is fairly common in emerging economies<sup>2</sup>. Since then Poland's Central Bank has gradually devalued the currency at decreasing rates starting at 1.6% per month in 1991, and equal to 1.0% in 1997<sup>3</sup>. The National Bank of Poland managed an orderly devaluation through the crawling peg. In April 2000, the crawling peg was 0.3% per month, at which time it was abandoned and the PLZ was allowed to float<sup>4</sup>. Nuti (2000) provides an extensive analysis of the PLZ's (PLZ) performance from 1990 to 1999.

Like many other emerging market currencies, the PLZ is not a convertible currency. To participate in the foreign exchange market, a bank must be a member of the central bank clearing system. The minimal transaction size is \$ 500,000. Free purchase of PLZ s and/or foreign currencies is accessible only to market participants (some ten to twenty foreign-owned and Polish banks). Additional emerging foreign exchange market problems are inflation, illiquidity, and the limited number of currencies handled by the market.

To examine the efficiency of the PLZ exchange rates we compare cross-rates of PLZ/USD, PLZ/DM, and DM/USD quotes for the period of 1992-1997. In an efficient market, the spread should be equal to zero, eliminating opportunities for covered arbitrage. Table 4 indicates that the 1994 efficiencies were challenged by the market conditions in 1995. It was not until the end of 1995 that markets regained a level of efficiency sufficient to eliminate covered arbitrage.

The elimination of covered arbitrage signaled the growing efficiency and maturity of Poland's foreign exchange market. This implies that the market experienced increased liquidity, declining transaction costs, and a reduced risk of large shifts in exchange rates. The increased volatility of exchange rates during 1995 may be explained by the transition to a managed float and very strong inflows of foreign currencies. In early 1995 many investors observed the PLZ's tendency to remain near the lower bounds of the permitted 4.0% trading band. Thus, investors began to speculate on the appreciation of PLZ<sup>5</sup>.

On April 10, 1995, the Ministry of Finance was surprised by a sudden, almost seven-fold increase of foreign demand for Polish T-bills<sup>6</sup>. This development was accompanied by rapidly growing foreign investment and a restrictive foreign currency policy that obliged all entities to sell their foreign currency balances to the Polish Central Bank. Consequently, foreign reserves grew at an unprecedented pace and the Central Bank, which was afraid of fueling inflation through expansion of the money supply, decided to relax its foreign currency policy and increase the trading band to 14%. A number of market participants used this opportunity to test the Polish Central Bank's rate of intervention, causing major swings in the exchange rates<sup>7</sup>. It took several months, 36 interventions and \$1.3 billion in purchases to calm the market<sup>8</sup>.

<sup>1</sup> "Poland: PLZ Crawling-Peg Devaluation Slowed," *Rzeczpospolita*, September 13, 1994.

<sup>2</sup> As currencies in Europe moved towards the Euro, the basket became a Euro/US dollar basket.

<sup>3</sup> The 1997 Guide to Poland, Special Issue of Published with the December 1996 Issue of *Euromoney*.

<sup>4</sup> The trading band of +/- 15% from parity and the 0.3% crawling peg used until April 2000 were introduced in March 1999.

<sup>5</sup> "Policy-makers have aimed to maintain the rate of the currency's depreciation at less than the inflation differential between Poland and the five basket countries. This means that over time, the zloty appreciated in real terms. This appreciation is justified by the fact that a primary objective of the central bank is to reduce inflation. In other words, the real appreciation of the currency is used to dampen inflation." (<http://www.morganstanley.com/GEFdata/digests/19971111-tue.html>, Nov. 11, 1997, accessed January 12, 2002.)

<sup>6</sup> Krajewska, Zofia, "The PLZ in 1995: Floating and strong," *Rzeczpospolita* No 300, 30 December - 1 January 1996, p. 14.

<sup>7</sup> Strupczewski, Jan, "Poland: Turbulent Rise Seen for PLZ After Float," *Reuter News Service - CIS and Eastern Europe*, May 11, 1995.

<sup>8</sup> Krajewska, Zofia, "The PLZ in 1995: Floating and Strong," *Rzeczpospolita*. No 300, 30 Dec - 1 Jan 1996, p. 14.

Table 4

## Covered Arbitrage Opportunities

<b>Panel A: Absolute Spreads</b>				
	March	June	September	December
1992	-	-0.10	-0.06	-0.07
1993	-0.06	-0.09	-0.06	-0.10
1994	0.00	0.02	0.00	0.00
1995	-0.04	0.10	-0.09	0.00
1996	0.01	0.00	-0.01	0.00
1997	-0.01	0.00	-	-
<b>Panel B: Percent Spreads</b>				
	March	June	September	December
1992	-	-0.07	-0.04	-0.05
1993	-0.04	-0.05	-0.02	-0.04
1994	0.00	0.01	0.00	0.00
1995	-0.03	0.05	-0.04	0.00
1996	0.00	0.00	0.00	-0.01
1997	0.00	-0.01	-	-

*Polish Equity/Debt Financial Markets*

Poland's financial markets were reestablished in the early 1990s after a sixty-year break caused by World War II and the Communist era. Polish stock market trading started in April 1991 with stocks of five carefully selected industrial enterprises. By the end of 1992, there were 16 listed companies and as of November 1993, there were still only 22 stocks traded on the Warsaw Stock Exchange. The overall market capitalization was around \$2 billion, which amounts to only \$34 per capita (in the Czech Republic the per capita stock portfolio by November 1993 was estimated at approximately \$500), and was expected to increase by 50-75% by the spring of 1994. During the first half of 1993, the Polish stock market gained 213% in U.S. dollar terms. This was the best performance anywhere in the world. By June 30, 1999, there were 7,290 Joint Stock Companies in Poland, representing 5.2% of all companies.

The Warsaw Stock Exchange (WSE) is the only stock exchange in Poland, established on March 22, 1991 with the introduction of the Act on Public Trading in Securities and Trust Funds. The act created a securities market based on four principles:

1. A paperless system: all securities admitted to public trading are kept in the National Depository of Securities in book-entry form.
2. The Warsaw Stock Exchange concentrates all supply and demand for securities admitted to trading.
3. All public companies have to publish detailed reports on their activities.
4. All equities are traded in the "par cashier" system. The trading system is order driven.

As of December 31, 1999, the market capitalization of the WSE was PLN 123.4 billion (\$ 29.6 billion), or 20% of 1998 GNP (Table 5). Its turnover/liquidity ratio was 46%. The average free float was approximately 30%. There were 221 companies listed on the exchange, including 15 National Investment Funds. The government is a shareholder of approximately 15-20% in 57 of these listed companies. In addition to WSE, there is an over-the-counter market called CeTO, where some 25 equities were listed by December 1999. 15 of the 221 listed companies constituted 80.1% of the total market capitalization. Foreign investors accounted for 39% of the total turnover. By comparison, domestic institutional investors accounted for 22% and domestic retail investors for 39%. At the end of 1999, the Polish financial market was the largest European emerging market, and had market capitalization exceeding \$29.5 billion.

Table 5

## List of sectors represented on the WSE as of December 1999

Macro sector/sector	Market value	% in total market value	Macro sector/sector	Market value	% in total market value
INDUSTRY	33,540	27.1	FINANCE	35,131	28.4
Food	5,037	4.0	Banking	34,121	27.6
Light Industry	339	0.2	Insurance	858	0.7
Wood & Paper	1,177	0.9	Other	151	0.1
Chemicals	13,271	10.7	SERVICES	52,899	42.8
Building Materials	1,216	0.9	Wholesale & Retail	1,722	1.4
Construction	3,420	2.7	Conglomerates	3,076	2.4
Electro engineering	2,237	1.8	Telecom & IT	42,648	34.5
Metals	6,764	5.4	Other	5,454	4.4
Other	77	0.0	NIFs	1,840	1.4
TOTAL				123,408	100

Source: Warsaw Stock Exchange.

Figure 1 displays the performance history of the Polish equity markets from 1992 to 2001. The figure clearly indicates that the period when the Polish economy and markets were developing (1992-1997) was the most volatile in terms of corporate decisions to access the market for capital requirements. In 1993 the Warsaw Stock Exchange (WSE) slowly gained the confidence of both domestic and foreign investors. During 1993 stocks became more fashionable. This fashion developed into a regular run during the year, which pushed the WSE to record heights (the WSE grew from 1,040 to 12,439 during 1993). The bubble burst on March 11, 1994 at 20,623. Subsequently, the WSE fell to a low of 5,926 on February 2, 1995, but then rebounded to 15,670.2 by April 4, 1997. The average annual nominal PLZ return in the discussed period was 76.5%, which is not very surprising for a country with high inflation. The nominal average dollar returns on the WSE were much lower, but still amounted to an impressive 58.3% annually. As already noted, PLZ showed a clear tendency for real appreciation.

At the early stages of the equity market, the majority of the Initial Public Offerings (IPOs) were privatized companies. Procedures for going public were relatively well developed and included different forms of subscriptions and distribution through the stock exchange. The underwriting services reflected early market stages and were expensive. The secondary market – the Warsaw Stock Exchange (WSE) – began its operations on April 16, 1991.

The correlation of the US, German and Polish exchange rates is very low. During the Polish exchange's developmental period, the correlation coefficient between DAX and the Dow Jones was at the level of 0.24, while the correlation coefficient of WSE with Frankfurt and New York was below 0.20. However, the low correlation coefficients are not likely to reflect the true level of dependence for two reasons. First, weekly returns incorporate local information that is not relevant for other stock exchanges. This information produces noise that artificially lowers the statistical correlations. Second, research suggests that stock market performances have autoregressive components in the long run<sup>1</sup>. This suggests that some recurring stock performance cycles may have a stronger correlation in the long run than in the short (weekly) run. With low correlation levels

<sup>1</sup> Fama, Eugene F., French, Kenneth R., "Business Conditions and Expected Returns on Stocks and Bonds," *Journal of Financial Economics* 25 (1989), p. 23-49.

managers with emerging market operations cannot rely upon hedging instruments from other markets to cover the risk associated with their emerging market investment<sup>1</sup>.

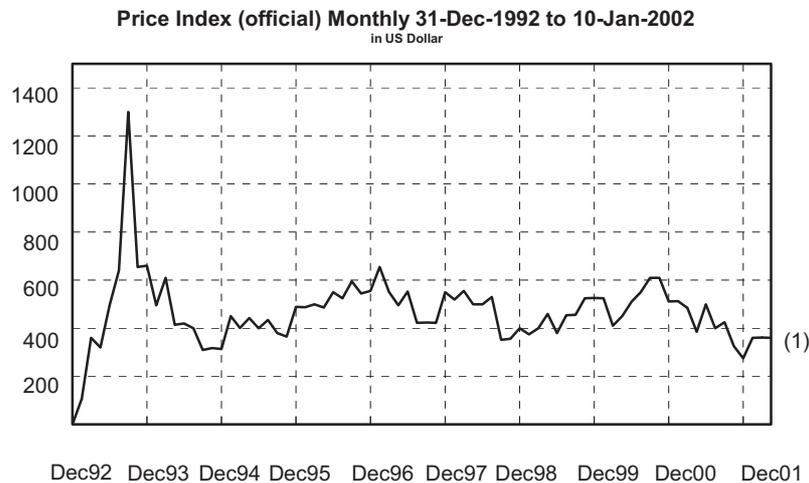


Fig. 1. Polish Equity Market Performance

The fixed-income market in Poland was developing rapidly, but was relatively illiquid. Treasury bills and bonds accounted for 70% of the market capitalization and were its biggest segments. High inflation and high interest rates were the main barriers to the development of fixed-income securities. Nevertheless, commercial papers, as well as municipal and corporate bond programs played an increasing role in the market.

In 1997, as MNEs considered appropriate funding sources for their working capital needs in Poland, the Polish Treasury issued six types of bills (4, 8, 13, 24, 39, and 52 weeks) and five types of bonds. Bills were bought at a discount and their par values were received at maturity. Bonds with maturities of 1, 3, and 10 years had floating-rates tied to T-bills' yields or inflation, while bonds with maturities of 2 and 5 years were fixed-rate, paying 18% and 15%, respectively. The inverted yield curve, with the six-month bill yielding 20% and the two-year bond yielding 18%, reflected investors' confidence in declining inflation rate. The commercial paper (CP) market consisted of securities issued by top-tier companies. CP traded at 20 to 50 basis points (bp) over Treasuries. There were about 10-15 companies issuing commercial paper. These issues tended to be small and quite illiquid.

### Emerging Market Working Capital Strategies

Emerging economies present unique opportunities to firms attempting to evaluate their working capital requirements. Since there has been very little research done on this topic, this research takes a unique approach by examining the implications of funding opportunities in an emerging economy. Specifically, this study evaluates the funding issues related to GM's investment in Poland. Although Section III highlights information on the Polish markets, the issues of foreign exchange stability and corporate access to emerging equity or fixed income capital markets confront MNEs in all developing nations. Given Poland's emerging market environment from 1992 to 1997, we examine the issues of working capital management confronting GM's Polish operations.

GM's international strategy involves capitalizing on emerging market opportunities in Central and Eastern Europe. GM's German affiliate, Adam Opel AG, is its most important export brand. It develops and implements manufacturing technologies for GM's foreign plants. In 1996

<sup>1</sup> As an example, the Austrian schilling's correlation with the German DM was 0.99. Thus, those operating in the Austrian market could hedge exposure to the schilling with the more liquid DM forward and futures contracts. Consequently, schilling denominated derivatives did not evolve as significant market instruments.

Adam Opel AG announced a plan to build a car factory in the southern Polish town of Gliwice. GM viewed construction of this plant as a response to Poland's booming auto sales and the excellent future prospects of the Polish and Central European automotive markets. GM planned to spend DM500 million to build the factory and estimated working capital requirements would cost at a minimum of DM133 million. To provide for working capital for its new Polish operations, GM planned to issue debt (or equity) in Poland, the US, or Germany. The decision was complicated by extremely volatile foreign exchange rates, which influenced the real cost of borrowing.

Adam Opel AG is the most important strategic business unit within GM International. The general strategy of GM, as outlined by Chairman Jack Smith, focused on cost cutting, lean manufacturing and using the same manufacturing methods and business practices around the world. Such tactics were meant to speed development times and grow all business sectors<sup>1</sup>. GM's international strategy was guided by their expectation that Central Europe's substantial increase in demand would cause the overall European market to grow by 30% within the next 10 years. GM also expected the market in Latin America to grow by 25%, and the Asia/Pacific regional market to increase 40% and account for 30% of the world's market<sup>2</sup>.

In response to these expectations, GM planned the largest ever capacity expansion of its international operations sector, 25%, with an anticipated 50% growth in sales. To implement capacity extensions, GM planned to build a new car plant in Poland among other sites<sup>3</sup>. The international expansion of manufacturing facilities would enable GM to compete more effectively and change its international economic exposure. Dispersion of manufacturing plants over multiple countries plays a crucial role in hedging against international economic exposure.

The central idea of GM's lean production systems was the steady pursuit of perfection and reduction of any kind of waste. Just-in-time manufacturing systems are a logical consequence of lean production because they reduce both resource and end product waste. The crucial feature of just-in-time is the necessity to buy parts and subassemblies from producers located in the vicinity of assembly plants. In practical terms it meant that GM's Polish operation would buy components in Poland. GM planned to buy DM800 millions worth of components in Poland in 1998<sup>4</sup>. As a result, the total local content share was expected to reach 60% by the year 2000<sup>5</sup>. Assuming that the inventory turnover cycle in Poland would be of comparable length as in the US (some 60 days), Opel needed to invest DM133 million in working capital in PLZs for purchases in Poland.

To finance these working capital requirements, GM could issue either debt or equity. Both types of securities could be issued in Germany, Poland, or the US. To determine the appropriate option we examined the following information:

1. Trends in foreign exchange rates (USD to DM, PLZ to USD, and PLZ to DM) to assess their influence on the valuation of foreign assets and debt.
2. The performance of equity markets in Germany, Poland, and the US to assess which market was the most appropriate for an equity issue.
3. The performance of short-term corporate debt markets to assess costs and risks associated with issuing short-term debt in each of these markets.

GM's options to issue either equity or debt to cover their Polish working capital requirements presented management with complexities unique to developing nations. When examining equity financing GM had two general options: register its own shares (ones tied to the performance of the Polish operations) on the WSE, or issue stock for Polish operations and retain controlling stake. The first option was the de facto option of investing in a foreign corporation because the results would be consolidated in dollars. Despite the potentially high profitability of Polish operations, investors' returns would be diminished by real PLZ appreciation. A Polish investor might be interested in the investment to diversify his/her portfolio. In such a case, investment in securities tied to the Polish market would not have benefited US based investors.

<sup>1</sup> Child, Charles. "GM Focuses on Growth, Smith Says," *Automotive News*, January 13, 1997, p.1.

<sup>2</sup> "GM's Global Strategies Focus on Customers, Growth, Competitiveness," PR Newswire, May 24, 1996.

<sup>3</sup> "Due to the financial turmoil in Southeast Asia, GM has decided to delay its plans to open a major assembly plant in Thailand." Blumenstein, Rebecca. "GM Delays Plans to Open Big Thai Plant," *Wall Street Journal*, January 6, 1998, p. A2.

<sup>4</sup> "Financial Adviser not Appointed as GM Begins Building Factory," *Finance East Europe*, October 11, 1996.

<sup>5</sup> Done, Kevin, "News: World Trade: GM in Polish Car Plant Deal," *Financial Times*, June 27, 1996, p. 4.

The second option involved an investment in a growing segment of the economy and the positive perception of GM as the controlling shareholder. Once again, GM would have to convince Polish investors that it was going to realize profits in Poland. Due to the risk factors involved, the required rates of return were high. This made equity a relatively costly source of financing. With rates of up to 30%, underwriting fees were extremely high. Consequently, to fund its Polish working capital requirements GM did not elect to issue equity.

After eliminating the equity option, GM's management turned to its fixed income options. Current volumes in Poland's corporate debt market were low and maturities were very short, usually less than one year. Since the total number of issues was below 20, it was difficult to establish a relevant short-term rate. For this reason we compared three-month WIBOR, FIBOR and T-bills rates as proxies for short-term corporate debt.

In Germany and the US, interest rates were stable at 3.0% and 5.0% respectively, while Polish interest rates were volatile and very high, exceeding 20.0%. However, in the long run Polish rates declined, reflecting easing inflation. Analysis of real interest rates offered three insights. First, volatility depended heavily on the time interval in which inflation was measured. Second, Poland's high inflation dramatically increased interest rate volatility. Third, the real interest rate was not directly observable in the market place, since it is calculated using by ex post inflation rates. The conclusion is that short-term borrowing is warranted only in the currency of the market where the funds will be used<sup>1</sup>.

Commercial bank loans are one of the most important short-term financing instruments used worldwide. Foreign managers must decide what type of bank credit should be used to meet cash needs. Researchers suggest that firms should employ the least costly source of funds before using sources that are more expensive. Since the PLZ appreciated in real term, it was profitable to borrow dollars and invest in PLZs. This is because there was a positive foreign currency exchange gain in addition to the profits from Polish operations. Unfortunately, real returns on short-term investment depended heavily on swings in exchange rates. Since forward exchange rates are not readily available for many emerging nations, it is difficult to forecast future exchange rates. Thus, it is not possible to forecast real borrowing costs.

Poland's corporate debt market was small and illiquid, but it grew rapidly. The biggest advantage of borrowing in Poland was that debt repayment did not depend on exchange rates and nominal costs were known. The challenge was that nominal costs were high, while real rates were relatively low. Thus, borrowing in Poland was a viable option for GM. This option also created an opportunity for GM to develop a balance sheet hedge to protect its investment from foreign exchange risks.

## Summary and Conclusion

In this paper, we examine working capital requirements funding in an emerging market. In particular, this paper summarizes the important findings concerning GM to illustrate critical issues for managerial making regarding the efficient management of funding working capital. In examining corporate working capital funding alternatives in emerging markets, our strategic analysis indicates that management should fund domestic working capital requirements with domestic currencies at the early stages of market development. Our study illustrates that as emerging markets evolve and become more integrated in the global economy, covered arbitrage opportunities dissipate and currency stabilization occurs. In this phase of market evolution, working capital funding alternatives expand to include other international currencies, as other funding sources become more attractive for MNEs.

These conclusions support managerial decisions to diversify the funding sources for working capital requirements after an initial phase of concentrating funding in the domestic market. As covered arbitrage opportunities are reduced in emerging markets, the stability of the domestic market increases and possible funding sources for working capital expand. Firms in emerging economies should realize the importance of properly planning the working capital funding. Because most firms in emerging

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<sup>1</sup> J.P. Morgan provided data series, with the exception of 3-month treasuries, which were obtained from the Federal Reserve Bank's of Saint Louis.

economies fail to plan how to properly fund working capital requirements, there is still a great need for continued research that examines the pattern of financing working capital requirements in these economies. In addition, MNEs are continuously challenged as they acquire domestic firms/enterprises in emerging markets to efficiently fund their capital requirements.

## References

1. Clark, Robert A. "Eastern Europe's Emerging Securities Markets." *Journal of East-West Business*, Vol. 9, No. 1 2003, pp. 91-108.
2. Ediz, T., I. Michael, and W. Perraudin. 1998. "Regulation, Licensing, and Inspection of Miscellaneous Commercial Sectors," *Federal Reserve Bank of New York, Economic Policy Review*, October, 4(3), pp. 15-23.
3. Edmunds, J. C. 1984. "Working Capital Management in Multinational Companies: An Integrated Approach," *Management International Review*, pp.73-80.
4. Gentry, James A., D. Mehta, S. Bhattacharyya, R. Cobbaut, and J. Scaringella. 1979. "An International Study of Management Perceptions of the Working Capital Process," *Journal of International Business Studies*, 10, pp. 28-38.
5. Hawawini, G., C. Viallet and A. Vora. 1986. "Industry Influences on Corporate Working Capital Decisions," *Sloan Management Review*, Vol. 27, 4 (Summer), pp. 15-24.
6. Haubrich, J. G., and P. Wachtel. 1993. "Capital Requirements and Shifts in Commercial Bank Portfolios," *Economic Review*, 29, pp. 2-15.
7. Holden, Alfred C. 1997. "Creating A Meaningful Working Capital Guarantee Program For the Small Exporter: The Case of the U.S. Eximbank," *Managerial Finance*, 23, pp.3-18.
8. Hubbard, Carl M., and Daniel T. Walz. 1993. "Working Capital Requirements Revisited," *The Engineering Economist*, 38, pp.249-256.
9. Jacques, K. T., and P. Nigro. 1997. "Risk-Based Capital, Portfolio Risk and Bank Capital: A Simultaneous Equations Approach," *Journal of Economics and Business*, pp. 533-47.
10. Kolay, M. 1991. "Managing Working Capital Crises" *Management Decision*, 29, pp. 46-52.
11. Kraus, J.R. 1999. "Banks Warn Higher Capital Requirements Could Hinder Emerging-Markets," *Lending American Banker*, International Monetary Fund, Sept 28, 164, pp. 186
12. Lessard, Donald R. 1979. "Currency and Tax Considerations in International Financing," *Working Paper Series No. 3*, Massachusetts Institute of Technology, Spring.
13. Nuti, Mario Domenico. 2000. "The PLZ, 1990-1999: Success and Underperformance," *American Economic Review*, May, pp. 53-58.
14. Pohlman, R. A., E. S. Santiago and F. L. Markel. 1988. "Cash Flow Estimation Practices of Large Firms," *Financial Management*, 14(2), pp. 71-79.
15. Rochet, J. C. 1992. "Capital Requirements and the Behavior of Commercial Banks," *European Economic Review*, 36:1137-78.
16. Shao, Lawrence P. 1997. "Capital Structure Norms among Foreign Subsidiaries of U.S. Multinational Enterprises," *Global Finance Journal*, 8, pp. 145-158.
17. Shapiro, Alan C. 1996. *Multinational Financial Management*, Prentice Hall, Upper Saddle River, NJ, pp. 347-359.
18. Soenen, L. A. 1986. "International Cash Management: A Study of the Practices of U.K.-Based Companies," *Journal of Business Research*, 14, pp. 345-354.
19. Srinivasan, V., and Y. Kim, 1986. "Payment Netting in International Cash Management: A Network Optimization Approach," *Journal of International Business Studies*, 3(2), pp. 1-20.
20. Stevens, G. T., Jr. 1986. "Revenue Requirement Analysis with Working Capital Changes: A Tutorial." *Engineering Economist*, 32 (1) Fall, pp. 1-16.