Reassessing the Internationalization-Performance Hypothesis: Evidence from Indian Pharmaceutical Industry

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Talking Points

- Introduction
- Theory and Conceptual Model
- Methods
- Data Analysis & Results
- Discussion
- Limitation
Introduction

- Phenomenon of internationalization of EMFs has received considerable attention of the international business researchers (Chittoor and Ray, 2007; Kalotay and Sulstarova, 2010).

- The central argument in majority of these studies is that the developed market firms internationalized for exploiting their competitive advantage (Hejazi and Santors, 2005; Hitt, Tihanyi, Miller, and Connelly, 2006)

- Evidence regarding the linkage between performance and internationalization of EMFs is inconsistent and inconclusive (Jormanainen and Koveshnikov, 2012)
EMF’s Vs. Multinationals

- Generally, EMFs are unable to face international competition because:
  - traditionally these firms operated in protected environment (Chittoor, Ray, Aulakh, and Sarkar, 2008); and
  - they had limited access to advanced technology, financial resources, better quality of products and management skills, etc. (Khanna and Palepu, 2006).

- The internationalization paths of EMFs are likely to be different from that of developed market
Emerging markets witnessed environmental turbulence in terms of radical institutional reforms and policy changes (Hoskisson, Eden, Lau, & Wright, 2000; Wright, Filatotchev, Hoskisson, & Peng, 2005).

The impact of the external environment on the relationship between firm resources and capabilities, and performance needs to be recognized (Drnevich and Kriauciuñas, 2011).

Development of firm resources and capabilities in response to environmental changes also has an impact on internationalization endeavors of EMFs (Collis, Young and Goold, 2007).
In order to have a better insight into internationalization of EMFs, there is a need for a comprehensive framework linking environmental changes, firm resource and capabilities, firm resource and internationalization (Weigelt, 2013).

In this study, using unbalanced panel data of 367 Indian pharmaceutical firms for the 1991 to 2012, we examine how regulatory policy changes influence the relationship between firm resources and capabilities, and its performance, which in turn affects its internationalization.
Indian pharmaceutical industry

- In the forefront of India’s science-based industries with wide ranging capabilities in the complex field of drug manufacture and technology (IBEF, 2007).
- It ranks 4th in volume and 13th in value in the world today (OPPI, 2009).
- It is estimated at $19.4 billion including exports in 2008-09 (CRIS INFAC, 2010).
- It employs 5 million worker directly and 24 million workers indirectly (OPPI, 2009).
- Highly fragmented with more than 5,500 registered units (Sampath, 2005).
Evolution of Indian pharmaceutical industry

The path of growth and development of the Indian pharmaceutical industry has been very torturous and eventful.
Indian pharmaceutical industry provides a compelling context

- These changes threatened the traditional sources of competitive advantage of industry but it managed to successfully face these challenges (KPMG, 2006).
- Transformation and growth is driven by indigenous firms, in a sector that is highly knowledge intensive have stringent export and regulatory barriers (Chittoor et al., 2008).
- Indian pharmaceuticals are doing well in a sector that is mostly dominated by MNCs from developed countries (Chittoor et al., 2008).
Theoretical framework

- Contextual factors, such as firm specific characteristics and environmental conditions collectively determine whether internationalization would be a prudent strategic decision for a firm (Kirca et al., 2011).
- EMFs can effectively respond to environmental changes by developing relevant capabilities and acquiring and reconfiguring strategic resources (Chittoor et al. 2009).
Firm-specific resources and capabilities

- Developed market firms already possess the resources required to export products to foreign markets, and these firms internationalize to exploit the stock of existing know how and capabilities (Chittoor et al., 2009).

- In contrast, EMFs, in general, face greater resource constraints (Kumar and Singh, 2008).

- The EMFs need to overcome initial resource constraints to become globally competitive (Chittoor et al., 2009).

- They can overcome these resource constraints through the process of learning and acquiring new skills and capabilities, which can help them to enter foreign markets (Luo and Tung, 2007).
Firm-specific resources and capabilities

**Innovative Capability**

- Investment in R&D leads to development of innovative products increasing the competitive advantage of the firm (Andras and Srinivasan, 2003).

- Innovative capability enables firms to develop higher value products and make greater optimal use of resources and capabilities (Chesbrough, 2003).

- Firms which enhance their R&D investments as a strategic choice are able to augment their available resources and products (Kuemmerle, 1999).

**Hypothesis 1a:** R&D expenditure of an Indian pharmaceutical firm affects its performance positively.
Firm-specific resources and capabilities

**Innovative Capability**

- In order to improve innovation capabilities, technology deficient EMFs need to access technology from international resources (Zhang Shu, Jinag, and Malter, 2010).

- Optimal use of know how and technology acquired from external resources also entails restructuring of internal resources (Zhang et al., 2010).

- By accessing international technology, EMFs improve their capabilities to produce value added products (Kumar and Aggarwal, 2005).

**Hypothesis 1b:** Expenditure on accessing international technology by an Indian pharmaceutical firm affects its performance positively.
Marketing Capability

• Marketing capabilities are important firm specific assets which improve their performance (Gaur and Kumar, 2010; Kirca et al, 2011).

• Marketing mix is one of the important organizational capabilities that renders competitive advantage to a firm, especially with respect to the introduction of new products (Akroush, 2012).

• There are three key activities relating to marketing capabilities: (i) marketing and promotional; (ii) distribution; and (iii) advertising.
Firm-specific resources and capabilities

*Marketing Capability*

- **Hypothesis 2a**: Marketing and promotion expenditure of an Indian pharmaceutical firm affects its performance positively.
- **Hypothesis 2b**: Distribution expenditure of an Indian pharmaceutical firm affects its performance positively.
- **Hypothesis 2c**: Advertisement expenditure of an Indian pharmaceutical firm affects its performance positively.
Firm-specific resources and capabilities

Access to international resources

- Firm’s access to international resources can help them build complementary and dynamic capabilities (Ethiraj, Kale, Krishnan, and Singh, 2005).

- In pharmaceutical sector, technology intensive capital goods are acquired and assimilated, especially by EMFs to catch up with latest developments (Young, Huang, and McDermott, 1996).

- Accessing financial resources from international market has advantages of increased reputation and credibility, corporate governance standards, and availability of capital for modernizing and building firm related capabilities (Khanna and Palepu, 2004).
Firm-specific resources and capabilities

Access to international resources

- There are two important resources, which firms can access internationally: (i) financial resources; and (ii) capital goods and raw materials.

**Hypothesis 3a:** Use of international financial resources by an Indian pharmaceutical firm affects its internationalization positively.

**Hypothesis 3b:** Use of international capital goods and raw material resources by an Indian pharmaceutical firm affects its internationalization positively.
Moderating role of dynamic environment and regulatory policy changes

• In order to improve their performance, firms need to align their strategies with the external environment (Venkatraman, 1990).

• In unpredictable environments, firms need to act with greater agility and acquire the relevant technological capabilities and R&D requirements to improve their performance (Carlo, Lyytinen and Boland, Jr., 2012; Lee and Xia, 2010).

• When environmental dynamism increases, risk and uncertainty for firms correspondingly increase, thereby adversely affecting the performance achieved by firm’s resources and capabilities.

**Hypothesis 4a**: Dynamic competitive environment moderates the relationship between an Indian pharmaceutical firm’s resources and capabilities and its performance negatively.
Moderating role of dynamic environment and regulatory policy changes

- Government regulations play an important role in ensuring that EMFs can access technology from developed market firms easily (Hout and Ghemawat, 2010)
- Institutional changes in the environment necessitate organizational transformations such as development of marketing and innovative capabilities (Craig and Douglas, 1997)

**Hypothesis 4b:** Regulatory policy changes moderate the relationship between an Indian pharmaceutical firm’s resources and capabilities and its performance positively
Firm performance and internationalization

- The quality of resources and capabilities such as capital equipment, raw materials, know-how and patented knowledge among EMFs is limited for several reasons (Hoskisson, Eden, Lau, and Wright 2000).

- Firms investing on acquiring resources and capabilities obtain substantial gains from successful quality improvement (Warusawitharana, 2012).

**Hypothesis 5:** The performance of an Indian pharmaceutical firm mediates the relationship between its resources and capabilities and internationalization
Conceptual framework
METHODS

• **Sample and data source**
  - *Prowess Release 3.1* database from the Centre for Monitoring Indian Economy (CMIE)
  - The aggregate data for exports to developed and emerging markets was obtained from Industry Analysis Service (Release 3.0) database from CMIE.
  - The CMIE database contains 587 firms under the industry classification of ‘drugs and pharmaceuticals’.
  - Final panel of 367 firms
Measures

- **Dependent variable**
  - % of foreign sales to total sales (FSTS)

- **Independent variables**
  - R&D intensity
    - ratio of % of annual R&D expenses to total sales
  - Access to international technology
    - ratio of % of annual royalties, license, technical know-how fees, etc. paid to total sales
  - Marketing expenses
    - ratio of % of annual marketing expenses to total sales
  - Distribution expenses
    - ratio of % of annual distribution expenses to total sales
  - Advertising expenses
    - ratio of % of annual advertising expenses to total sales
Measures

- International capital goods/raw material resources,
  - the sum total of annual foreign exchange spending on capital goods/raw materials as a % of total annual sales.
- International financial resources (IFR)
  - issue of new equity shares on international stock exchanges,
  - raising foreign exchange debt through the issue of debt securities, and/or
  - foreign exchange loans

\[
\text{IFR}_{it} = \left\{ \sum_{t=1}^{T} (\text{Forex equity} + \text{Forex debt} + \text{Forex borrowings}) \right\} \frac{1}{\text{Total Assets}}
\]

- Firm performance
  - ROA
  - ROE
- Control Variable
  - Size
  - Age
Moderators

- Significant regulatory policy changes by identifying important landmarks in the Indian regulatory landscape affecting the Indian pharmaceutical industry.
  - Post liberalization, the first major regulatory policy change took place in December, 1994, when India became the signatory to the TRIPS Agreement, which mandated adoption of product patent regime (Rai, 2008a).
  - The second major regulatory policy occurred in April, 2005, when the Government of India amended the Patent Act, 1970 to make it fully TRIPS Agreement complaint (Rai, 2008b; Sampath, 2005).
Moderators

• Dynamic competitive environment captured various unobserved aspects such as price deregulation, liberalization, tax incentives on R&D, change in FDI policy, etc.

• We operationalized dynamic competitive environment by using performance risk as an indicator, which was measured as the average coefficient of variation of firms’ return on assets for each year from 1991 to 2012 (Haleblian and Finkelstein, 1993).
Analytical approach

- We used random-effects generalized least-squares panel regression procedure to estimate the models.
- Before making a choice between random-effects procedure and fixed-effects procedure, we conducted Hausman test, which supported fixed-effects specification.
- Variance inflation factor (VIF) value for all the explanatory and control variables range between 1.01 and 1.21, which indicated that multi-collinearity was not a problem.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
<th>Model 5</th>
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<tbody>
<tr>
<td>R&amp;D/TS (1 yr. lag)</td>
<td>H1a, +</td>
<td>.21** (.08)</td>
<td>.20** (.08)</td>
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<td>ITR/TS (1 yr. lag)</td>
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<td>ME/TS (1 yr. lag)</td>
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<td>DE/TS (1 yr. lag)</td>
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<td>AE/TS (1 yr. lag)</td>
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<tr>
<td>IFR (1 yr. lag)</td>
<td>H3a, +</td>
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<td>ICG/RM (1 yr. lag)</td>
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<td>RPC D (1996)</td>
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<td>RPC D (2006)</td>
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<tr>
<td>DCE × R&amp;D/TS</td>
<td>H4a, -</td>
<td>-.02* (.01)</td>
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<td>DCE × ITR/TS</td>
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Unstandardized regression coefficients reported; White's robust standard errors in parentheses. The changes in Wald chi-squares across the models are statistically significant at least at p = .01. *p < .10, **p < .05, ***p < .01, ****p < .001. Significance levels are based on robust standard errors and one-tailed tests.
Discussion

- EMFs, firm level capability development is a primary mechanism for improving its performance and internationalization.
- Evidence that innovative and marketing capabilities are important drivers of firm performance.
- The findings of our study provide evidence for the moderating effect of environmental dynamism and regulatory policy changes on the relationship between firm resources and capabilities, and firm performance.
Limitations

- Several other firm level characteristics such as leadership styles and prevalent forms of corporate governance in influencing performance-internationalization relationship
- Multiple industries in different geographical and institutional contexts would further improve and validate the conceptual framework of this study.
Thank You