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**VALUATION OF EQUITY IN THE CANADIAN SYSTEM OF NATIONAL ACCOUNTS —
2012 HISTORICAL REVISION PROJECT**

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This document has been prepared by Allan Tomas (Statistics Canada) and will be presented under item 3 of the draft agenda

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**VALUATION OF EQUITY IN THE CANADIAN SYSTEM OF NATIONAL ACCOUNTS –
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Background

1. Canada is in the midst of a historical revision to the **Canadian System of National Accounts** (CSNA), with a release timeframe of May-June 2012. This initiative covers upgrades relative to new international guidelines (e.g., SNA08, BPM6) as well as updates made to account for classification changes and other general statistical revisions. Given the integrated nature of the system, all component accounts (e.g., production, flow of funds, etc.) are being updated. This includes the wealth accounts, both the quarterly *National Balance Sheet Accounts* (NBSA) and the quarterly *International Investment Position* (IIP), where valuation of equity positions is a significant issue – both from the impact and measurement perspectives.

2. Most listed equity is valued at market in the CSNA, specifically that listed equity that is classified as portfolio investments. This partial approach generates accurate estimates of household net worth changes. However, inter-company listed equity and all unlisted equity are not recorded at market values. The 2012 historical revision offers an opportunity to improve the quality and consistency of the equity measures in the NBSA and IIP. Given this challenge, a harmonized approach to the valuation of equity in NBSA and IIP is required.

Characteristics of corporate equity

3. Corporate equity is a financial instrument for which financial accounting standards and national accounting guidelines permit differing valuation options. These valuations can include underlying book value at historical cost, own funds at book value (including an fuller accounting for holdings gains/losses), acquisition cost for assets, current (fair) value and market value.

4. On the liability side, equity is a measure of corporate net worth. It is also a source of funds and record of accumulated profits and losses for the enterprise. In the case of current international financial accounting standards, it incorporates paid-in capital (shares plus contributed surplus) and retained earnings as well as accumulated other comprehensive income. On the asset side, equity takes on two basic characteristics depending on the nature of the investment. It is an investment vehicle for portfolio investors. And it is a means of ownership in the case of inter-company investment, or its international equivalent cross-border direct investment. Given the above, it is not surprising that equity can reflect different values on issuers and investors financial statements.

5. These differences typically present challenges for statistical data compilers, especially for national accounts balance sheet compilers where consistency of valuation is essential; the constraint of a closed matrix on balancing assets and liabilities adds complexity to the situation. New financial accounting standards will likely lead to increased convergence of equity values in statistical source data, but statisticians will continue to face challenges in the near future.

6. A functional classification breakdown for components of corporate equity¹ includes:
- (a) listed portfolio investment
 - (b) listed inter-company (direct) investment
 - (c) unlisted inter-company (direct) investment
 - (d) other unlisted equity

International guidelines and measurement issues

7. The SNA 2008 approach for valuing listed shares is relatively straightforward, with the values reflecting the current prices quoted on stock exchanges or other organized financial markets. However, not all equity is listed nor quoted frequently on stock exchanges. Significant measurement challenges can arise for unlisted shares. This situation can impact various components of unlisted equity (of which the following types are listed in SNA 2008 13.70): (direct) investment enterprises, private equity, equity in unlisted and delisted companies, listed but illiquid companies, joint ventures and unincorporated enterprises.

8. International guidelines recommend valuation approaches for equity², including recent transaction price, net asset value, present value or price to earnings ratios, book values reported by enterprises with macro level adjustments by the statistical compiler, and apportioning global value. SNA 2008 and other international manuals such as the OECD Benchmark Definition of Foreign Direct Investment – 4 Edition (FDI-BD4) are largely consistent with respect to unlisted shares, which reflect the integrated nature of national accounts and international accounts statistics. Both sets of guidelines state that own funds at book value can be used if the other approaches are not practical.

Table 1: Approaches for valuing unlisted equity (unquoted shares)

SNA 2008	OECD Benchmark Definition of Foreign Direct Investment – 4 Edition (FDI-BD4)
Recent transaction price	Recent transaction price
Market capitalization (13.71 d)	Market capitalization
Net asset value	Net asset value - Including goodwill and intangibles - Excluding goodwill and intangibles
Present value / price to earnings ratios	Present value of expected earnings
Apportioning global value	Apportioning global value
Own funds at book value	Own funds at book value

¹ This note focuses on corporate equity excluding investment funds shares or units, also referred as mutual fund equity. In Canada, mutual fund equity valuation is available on both a cost and market value basis.

² Although SNA 2008 13.71 provides alternatives of approximating market value of shareholder's equity in a direct investment enterprise, this note assumes the recommended SNA alternatives can be applied to other types of unlisted shares (for example, portfolio).

9. It is conceivable that, for practical purposes, different countries may choose alternative methods by which to evaluate unlisted equity. These choices may reflect data limitations or considerations specific to their economies — for example, the propensity to list, which can differ across economies. This can lead to problems with respect to international comparability of national balance sheets' equity valuations and of FDI. It is also possible that it may be difficult to establish common time series across countries for market valuation of FDI. Further complication arises from the fact that some countries may choose to employ more than one method to estimate market value equity for unlisted companies.

Sources of data for equity in the Canadian System of National Accounts

Equity Liabilities

10. CSNA equity liabilities for all corporations are measured firstly at book value (BV) for resident corporations, and are built from the balance sheets of enterprise surveys (Quarterly Survey of Financial Statements). The corporate universe is stratified by size³, with larger companies (Take-All) being selected and surveyed with certainty and applied a weight of one in the estimates, with medium size companies (Take-Some) being selected based on a random selection methodology, with their estimates being applied a weight, and smaller companies (single legal entities) not being surveyed and having their data estimated from tax data.

Listed companies

11. For companies that are listed on a stock exchange, their floated (widely-held) shares are valued at current prices. For inter-company (direct) investment holdings, the companies' book value is used. This issue is being addressed in the 2012 CSNA historical revision.

Unquoted companies

12. For companies that are not listed on a stock exchange, their valuation is currently BV. This issue is being addressed in the 2012 CSNA historical revision.

Equity assets

13. On the asset side, for the large institutional investors their portfolio investment equity assets are valued at market value. For sectors where portfolio holdings are available only at acquisition cost from source data, the market values are estimated, by using implicit mark-up factors derived from other sectors. Non-resident sector portfolio assets and liabilities are constructed using a mixture of survey and market cap methods; inter-company investment remains at book value as recorded on the books of the investee. The household sector is derived residually but, with consistent valuation on the asset-liability sides across sectors, they are considered to be of good quality.

Initial work on market capitalization approach in Canada

14. Research undertaken by Statistics Canada in 2005 for the **OECD Task Force on the Valuation and Measurement of Equity**⁴ produced some provisional annual (1990 to 2004) estimates of unquoted equity at market value. The capitalization ratio approach was used to convert the book value estimates to market values, summarized as follows: Capitalization ratios (market value divided by book value) were

³ Each industry has different size thresholds to determine the strata companies fit into. The North American Industrial Classification System (NAICS 2007) is used to classify corporations into 80 subgroups.

⁴ In addition, a paper was released in 2006 with provisional estimates and methodology for FDI at market value.

applied to the equity positions of unquoted companies. Aggregates were estimated by segmenting corporations by size, both with and without applying a liquidity discount.

15. For detail on equity valuation of foreign direct investment in the CSNA please see *FDI statistics: Market Valuation* note by Canada presented in March 2010 at the **OECD Working Group on International Investment Statistics**. In summary, if the Canadian or foreign subsidiary or affiliate is listed on a stock market, it's appropriate capitalization ratio is used and applied to the surveyed book value equity positions; however, if the subsidiary or affiliate is not listed on a stock market, a capitalization ratio is imputed by taking the Canadian industry average ratio or by using the ratio of the parent enterprise.

Construction of capitalization ratios

16. The capitalization ratios are based on the Toronto Stock Exchange (TSX) data reconciled to a Statistics Canada enterprise survey. Capitalization ratios were established for individual companies at period-end using the following formula:

$$\text{Market capitalization ratio} = \frac{\text{Market value}}{\text{Book value}} = \frac{\text{MktCap}}{\text{share} + \text{cs} + \text{re}}$$

MktCap - Market capitalization from the TSX; share - Share capital (common and preferred shares); cs - closing balance of contributed surplus (inclusive of appraisal credits and other equity changes); re - closing balance of retained earnings.

17. This method gives a set of ratios for listed companies. These ratios are then used to generate Canadian industry average ratios applied on the equity of unlisted companies; however, extreme values, or outliers⁵, are removed.

Measurement issues

Treatment of small companies

18. There are a small number of unlisted enterprises that account for most of the value, while a large number of enterprises at the bottom of the distribution account for very little value. It can be argued that smaller companies do not have the same characteristics as traded firms, and as such should not be marked up using a market cap ratio. Arguably, these small firms could be left at book value, as they were in the provisional estimates. It could be argued that book value (including accumulated earnings) is a reasonable estimate for these small firms.

Specific sectors

19. The high degree of foreign ownership coupled with the small number of automobile manufacturers in Canada results in industry capitalization ratios that are not considered representative. For this sector, market value estimates for both foreign direct investment in Canada and Canadian direct investment abroad were based on information for the global parent company in the provisional estimates for FDI and domestic balance sheet accounts

⁵ Ratios over 10 and under 0.2 are considered candidates as possible outliers.

Issue: Propensity to list in Canada

20. The propensity to list equity is relatively low in Canada, at least in comparison to the United States. In terms of coverage in the Canadian balance sheet accounts roughly 5800 corporations are listed⁶, accounting for about 50% of the value of all corporations. For FDI, the numbers are smaller; for inward investment roughly 10-12% of the value pertains to listed corporations, while on outward investment over 50% of the total value is owned by listed Canadian direct investors. The upshot of this situation is that market value estimates of unlisted and inter-company (direct) equity are likely sensitive to the choice of method(s) employed.

Implementing SNA 2008 in the 2012 historical revision**Current valuation of equity in the Canadian System of National Accounts**

21. Table 4 shows the current valuation of equity within the Canadian System of National Accounts. The current situation is sub-optimal, with a mixture of valuations. For example, while this has given rise to good quality market value estimates for the household sector in the case of their holdings of portfolio listed equity; this is not the case for the non-resident sector's equity assets and liabilities, specifically as it relates to direct inter-company investment.

22. As a result, we have two quarterly published estimates of *Canada' International Investment Position*: one at underlying book value and the other with portfolio instruments at market value. A similar situation exists with respect to the *National Balance Sheet Accounts*, but the emphasis in the quarterly release of data is on the market value balance estimates.

Table 2: Simplified equity structure and valuation in Canadian SNA balance sheet account

COMPONENTS OF EQUITY – Canadian SNA	Balance Sheet Accounts	International Investment Position	Current Valuation	Considerations
Total Assets	x		MIX	
Portfolio	x		market	
Resident investors	x		market	
Non-residents	x	x	market	
Other				
Individuals (private)				Unlisted
Inter-company	x		book	Some listed enterprises
Residents	x		book	
Non-residents (FDI)	x	x	book	
Total Liabilities	x		MIX	
Portfolio	x		market	
Resident issuers	x		market	
Non-residents	x	x	market	
Other				
Private companies				Unlisted
Inter-company	x		book	Some listed enterprises
Residents	x		book	
Non-residents (FDI)	x	x	book	

⁶ Total number of corporations at September 2010 was just over 2,250,000 (Source: Statistics Canada)

Co-ordination among compilers

23. Ideally, for data coherence and analytical purposes, the SNA balance sheet account reconciles with the underlying values of subsidiaries/affiliates foreign direct investment (FDI) equity values in the international investment position⁷. For FDI, the underlying book value of the investee firm is the long-standing standard concept for assets and liabilities that tends to ensure a high degree of consistency — measurement issues aside. Market valuation is another measure that holds the promise of consistency.

24. A market value steering committee is working to establish a co-ordinated approach to valuing unlisted equity and inter-company (direct investment) between the NBSA and IIP⁸. This will ensure a fully integrated set of statistics on equity in the Canadian accounts. In addition it should improve the accuracy of the CSNA statistics, by permitting for a more complete approach to issues in certain industries (e.g., auto, banking) as well as with specific companies. This will further facilitate other SNA enhancements, such as the establishment of the *Other Changes in Assets Account*.

25. Other considerations reflect the multitude of uses of the data, including international comparability. For example, the IMF Coordinated Direct Investment Survey wants equity at market value for all listed corporations and at OFBV for all unlisted corporations. This may involve producing and maintaining more than one estimate of inter-company (direct) investment.

Overview of assessment of unquoted equity methods for Canada

26. All SNA 2008 alternatives for valuing unquoted equity are under consideration, but for the historical revision in 2012 the emphasis is on the market capitalization method, largely on practical grounds. Over the longer-term we will likely explore other alternatives. The following is the status of the current evaluation of approaches.

Market capitalization

27. In the market capitalization method two important issues come to mind. First, whether there needs to be established a cut-off point based on enterprise size. It may be reasonable to assume that large unlisted corporations can be valued similarly to listed enterprises in the same industry, but less so for smaller firms — that may face a somewhat different set of realities in the marketplace. Second, whether there needs to be established an illiquidity discount applied to the estimated market values for unlisted enterprises (as recommended in SNA93)⁹. Then, of course, the related issue becomes the size of such a discount factor (5%, 10%, 15%, 20% ...), or how to establish such a discount, by industry.

28. SNA 2008 has since updated their section and guidance of the valuation of equity. The market capitalization method is described in “13.71 *d Book values reported by enterprises with macro level adjustments by the statistical compiler*. For untraded equity, information on “own funds at book value” can be collected from enterprises then adjusted with ratios based on suitable price indicators, such as prices

⁷ For more information on the market valuation of FDI, please see “FDI statistics: Market Valuation” note by Canada in March 2010 prepared for the OECD Working Group on International Investment Statistics.

⁸ It is our understanding that a similar integrated practice between balance sheet compilers and FDI statisticians is followed at the Banque de France.

⁹ According to the SNA93, when they are regularly traded on stock exchanges or other organized financial markets, shares and other equities should be valued in the balance sheets at their current prices. The value of shares in corporations that are not quoted on stock exchanges or otherwise traded regularly should be estimated using the prices of quoted shares that are comparable in earnings and dividend history and prospects, adjusting downward, if necessary, to allow for the inferior marketability or liquidity of unquoted shares.

of listed shares to book value in the same economy with similar operations...” While SNA 2008 no longer explicitly recommends adjusting downward, if necessary, to allow for the inferior marketability or liquidity of unquoted shares, this adjustment continues to have merit.

29. Canada continues to favour the *market capitalization approach*, as used in the 2005-06 studies, largely on practical grounds. At issue is whether a size cut-off should be applied for which book value is maintained or whether an illiquidity discount should be applied to smaller unlisted companies. At this point, it seems that we will consider a size threshold in Canada, and leave enterprises below this threshold at book values.

Present value of expected earnings

30. This approach will be evaluated in the future by Canadian balance sheet compilers as an alternative to (i) either book values for smaller companies or (ii) the use of market capitalization with an illiquidity discount. This approach is in use for the balance sheet statistics of Spain. In the future, this approach holds some promise at least to improve estimates for the corporations below the size threshold.

Net asset value

31. The *net asset value approach* is not an ideal method for Canada, due to lack of needed data. Changes in financial accounting and better coverage of assets in the SNA may make this approach feasible in the future.

Recent transactions' price

32. For listed and especially for unlisted companies, a recent transaction price can provide a very good approximation of the current market value, especially if the transaction is close to the evaluation period and is between independent parties. However, given the paucity of transactions' data relative to total firms in any given period, the *recent transactions price* approach has its limitations. Nevertheless, it is certainly accurate for that entity in that time period and can serve as a useful reference point. This reference point can be applied directly as well as serve to apply to firms of similar size and in the same industry. The transaction price will be used to approximate the latest market value of some FDI companies. Alternatively, the reference point can be used to confront/adjust estimates derived from another method. At a minimum, Canada will likely use recent transactions price as part of data confrontation within regular data quality assurance.

Own funds at book value

33. Changes in financial accounting and better coverage of assets in the SNA will lead to improved methods of OFBV — methods that more fully account for holding gains and losses. In the future, this approach will improve estimates for the corporations below the size threshold.

Combination of methods

34. Establishing the best estimates for market value of equity is a project that will extend beyond the historical revision of 2012. In the end, Canada will likely opt for a judicious combination of methods. Certainly, there seems to be a consensus that firm size will be an important consideration. While many issues need to be researched and decided upon, it seems that the Canadian approach will be something like:

- Market values and transaction prices where these exist;
- Market capitalization for large unlisted companies;

- Own funds at book value or present value for smaller unlisted companies and industries-companies with special measurement challenges.

Summary and concluding remarks

35. The intent is to implement market value measures of unquoted equity in the quarterly estimates of the *National Balance Sheet Accounts*, with the next historical revision to the **Canadian System of National Accounts**. This transition will be coordinated with the revaluation of inter-company investment in the quarterly estimates of *Canada's International Investment Position*.

36. Canada would be interested in hearing from other country compilers on the estimation of market value of unquoted equity in their respective countries. This is especially important in the context of different country situations (e.g., propensity to list equity) potentially giving rise to different approaches, thus greatly impacting international comparability in important macroeconomic indicators produced within a System of National Accounts framework, including household net worth, national net worth and international indebtedness position.

37. This practical work would ideally dovetail (not duplicate) with country work on unlisted inter-company (direct) investment equity in the **OECD Working Group on International Investment Statistics**.